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INTRODUCTION

Control of sanitary cleaning ensures proper sanitary and hygienic conditions in a populated locality.

The principal sanitary requirements in this respect are frequency and regularity. A fundamental improvement in sanitary cleaning operations is only possible with maximum mechanization of all processes; this involves utilizing suitable equipment, mechanisms and installations.

The present catalogue divides these machines into basic groups, each of which is designed to perform a specific cleaning function.

The object of summer street cleaning is to remove dust and street refuse by sweeping, washing and sprinkling streets and squares. Winter street cleaning involves the clearing, scraping and removal of snow.

Residential cleaning involves the extraction and removal of fluid wastes (sewage) and the removal of household garbage to a disposal point in airtight vehicles.

The present catalogue presents data on equipment, mechanisms and installations which are currently used and which are mass-produced.

Short descriptions of the construction and technical characteristics of all the equipment, mechanisms and installations in the catalogue are given; these descriptions are sufficient to give a general knowledge of the units.

Drawings and further technical literature can be obtained from the organizations listed at the ends of the descriptions of the equipment, mechanisms and installations.

1. EQUIPMENT FOR SUMMER CLEANING OF COMMUNITIES

Note: This chapter is not being translated at the present time (Oct. 1959).

2. EQUIPMENT FOR WINTER CLEANING OF COMMUNITIES

Note: This chapter is not being translated at the present time (Oct. 1959).

3. EQUIPMENT FOR THE REMOVAL OF HOUSEHOLD GARBAGE AND SEWAGE

CESSPOOL EVACUATORS (FIG. 3-1 to 3-8 INCLUSIVE)

Cesspool evacuators are designed to remove fecal fluids from cesspools, to transport these fluids, and to discharge them into waste discharge stations, onto sanitary fields and at other disposal points.

Special equipment, including a tank, is mounted on an automobile chassis. A vacuum is created in order to draw wastes from the cesspool into the tank; the pressure difference between the cesspool and the tank provides sufficient suction to remove the fluids from the cesspool.

The tank is filled and emptied by means of an intake hose attached near the bottom of the rear end of the tank and placed so as to create a conduit between the interiors of the tank and the cesspool. The connection is provided with a blade shut-off device (gate valve) which hermetically seals the straight-through aperture.

The tank is provided with a safety valve which blocks the suction conduit during filling and hence prevents sewage from falling into the apparatus which removes the air from the tank. A rear inspection window is provided for controlling the filling operation.

Sewage is discharged from the tank by gravity or with the aid of pressure created in the tank.

For night operation the unit is equipped with revolving lights which light up the working area.

A cesspool evacuator is operated by two men - a driver and an operator.

A.S.M. CESSPOOL EVACUATOR (FIG. 3-2, 3-3)

The A.S.M. cesspool evacuator is mounted on a Z.I.S.-5 automobile chassis.

A vacuum in the tank is created by connecting the suction manifold of the motor to a recess in the tank.

Pressure in the tank is created by supplying it with exhaust gases from the exhaust manifold of the motor.

The vehicle has washwater tanks for washing purposes; the water in the latter tanks is under pressure created by exhaust gases and is delivered through hoses with nozzles.

The vehicle was designed in the Design Office of the Moscow Board of Public Utilities and is fabricated by the Experimental-Mechanical Plant of this Board.

This model was first produced in 1946.

Technical and Functional Characteristics

Volume of Tank, in Cubic Meters............	2.4
Highest Vacuum Created in Tank, in %.......	50
Maximum Pressure Created in Tank, in Atmospheres..........................	1.5
Maximum Depth of Wastes (Below Ground Level), in Meters.............................	3
Tank Filling Time, in Minutes..............	3 - 5
Tank Emptying Time, in Minutes.............	4 - 6
Fuel Consumption, in Liters per 100 Kilometers...............................	34
Production per 8-Hour Shift with Wastes Transported to Waste Discharge Station (Length of Haul from 4 to 5 Kilometers), in Cubic Meters.........................	16

Overall Dimensions, in Millimeters	
Length (With Intake Hose)	6,680
Width	2,115
Height	2,250
Total Weight of Vehicle (Not Loaded), in Kilograms	3,330
Portion of Total Weight Made Up by Evacuating Equipment, in Kilograms	750

Legend - Fig. 3-3

1. 2., 3., & 10. Stop Cocks;

4. Safety Valve;

5. Inspection Window ;

6. Cate Valve;

7. Suction Hose;

8. Washing Hose;

9. Exhaust Muffler;

11. Washwater Tank;

12. Gas-Selection Chamber;

13. Vehicle Motor.

No.	Operation	Number and Position of Value				Position of Gas-Selection Chamber Flap Valve
		1	2	3	4	
1	Loading	Open	Closed	Closed	Closed	A
2	Unloading By Gravity	Closed	Open	Closed	Closed	A
3	Unloading Under Pressure	Closed	Closed	Open	Closed	B
4	Washing With Hose	Closed	Closed	Closed	Open	B

Ts.N.-15 CESSPOOL EVACUATOR (FIG. 3-4, 3-5)

The Ts.N.-15 cesspool evacuator is mounted on a Z.I.S.-5 automobile chassis.

A vacuum in the tank is created by a rotary vacuum pump which creates a higher vacuum than is the case with the A.S.M. unit and hence permits the removal of more viscous wastes.

The vacuum pump is driven from the motor of the vehicle through the shift transmission housing, the power selection casing, and the universal shaft.

During the winter the vacuum pump, the oil pan, piping and other parts of the vehicle are heated by exhaust gases from the motor of the vehicle.

The preparation and development of the designs for this vehicle were executed by the Leningrad City Cleaning Trust where the unit has recently been put into operation.

This model was first produced in 1945.

Technical and Functional Characteristics

Volume of Tank, in Cubic Meters.................	2.4
Highest Vacuum Created in Tank, in %...........	Up to 70
Maximum Pressure Created in Tank, in Atmospheres..................................	1.5
Maximum Depth of Wastes (Below Ground Level), in Meters....................................	4
Fuel Consumption, in Liters per 100 Kilometers..	34
Production per 8-Hour Shift with Wastes Transported to Waste Discharge Station (Length of Haul 4-5 Kilometers), in Cubic Meters.................................	16

Overall Dimensions, in Millimeters	
Length (With Intake Hose)	6,500
Width	2,100
Height	2,100
Weight of Vehicle (Not Loaded), in Kilograms	3,500
Portion of Weight of Vehicle Made up by Evacuating Equipment, in Kilograms	1,050

Legend - Fig. 3-5

1. Tank;
2. Safety Valve;
3. 7., 10., 11., & 14. Stop Cocks;
4. Manometer;
5. Spark Extinguisher;
6. Motor;
8. Power Selection Casing;
9. Settling Tank;
12. Exhaust Muffler;
13. Universal Shaft;
15. Vacuum Pump;
16. Oil Pan;
17. Suction Hose.

A.S.M.-2 CESSPOOL EVACUATOR (FIG. 3-6, 3-7)

The A.S.M.-2 cesspool evacuator is mounted on a G.A.Z.-51 automobile chassis.

A vacuum in the tank is created by connecting a recess in the tank to the suction manifold of the motor.

Pressure in the tank is created by supplying it with exhaust gases from the exhaust manifold of the motor.

A washwater tank is provided for washing contaminated parts of the vehicle; the water in the washwater tank is under pressure created by exhaust gases and is delivered through a hose with a nozzle.

The exhaust gases which create a pressure in the tank flow through the washwater tank which acts as a spark extinguisher under these conditions.

The A.S.M.-2 cesspool evacuator was designed in the Design Office of the Moscow Board of Public Utilities. The unit is fabricated in the Experimental-Mechanical Plant of this Board and in the Gorky Mechanical Plant of the Ministry of Municipal Affairs of the Russian Soviet Federated Socialist Republic.

This model was first produced in 1950.

Technical and Functional Characteristics

Volume of Tank, in Cubic Meters	2.2
Highest Vacuum Created in Tank, in %	50
Maximum Pressure Created in Tank, in Atmospheres	1.5
Maximum Depth of Wastes (Below Ground Level), in Meters	3
Tank Filling Time, in Minutes	2.5 - 4
Tank Emptying Time, in Minutes	3 - 4
Fuel Consumption, in Liters per 100 Kilometers	26.5

Production per 8-Hour Shift with Wastes Transported to Waste Discharge Station (Length of Haul 4 - 5 Kilometers), in Cubic Meters	26.5
Overall Dimensions, in Millimeters	
Length (With Intake Hose)	6,100
Width	2,100
Height	2,300
Total Weight of Vehicle (Not Loaded), in Kilograms	3,045
Portion of Total Weight Made Up by Evacuating Equipment, in Kilograms	715

Legend - Fig. 3-7

1. Inspection Window;

2. Window Wiper;

3. Safety Valve;

4. 5., 8. & 10. Stop Cocks;

6. Motor;

7. Gas-Selection Chamber;

9. Washwater Tank;

11. Exhaust Muffler;

12. Tank;

13. Wash Hose;

14. Intake Hose;

15. Gate Valve.

No.	Operation	Number and Position of Cock 1	2	3	4	Position of Gas Selection Chamber Flap Valve
1	Loading	Open	Closed	Closed	Closed	A
2	Unloading by Gravity	Closed	Open	Closed	Closed	A
3	Unloading Under Pressure	Closed	Closed	Open	Closed	B
4	Washing with Hose	Closed	Closed	Closed	Open	B

A.N.B. CESSPOOL EVACUATOR (FIG. 3-8)

The A.N.B. cesspool evacuator is mounted on a G.A.Z.-51 automobile chassis.

A vacuum in the tank is created by one of the following methods;

(1) Operation of the motor;

(2) Rotary pump;

(3) Joint operation of motor and rotary pump (when viscous wastes must be removed).

Pressure is created by a rotary pump or by supplying the tank with exhaust gases from a gas-selection chamber installed on the exhaust pipe of the motor.

The intake hose and its sheath, the hatch and other contaminated parts of the vehicle are washed by water under pressure delivered through a hose with a nozzle from a washwater tank; the pressure is created either by exhaust gases or by the pump.

When pressure in the tank is created by exhaust gases, the gases pass through the washwater tank which acts as a spark extinguisher.

Safety valves are provided which prevent pressures in the tank from increasing above two atmospheres and vacuum pressures beyond 90%.

The rotary pump is powered by the motor of the vehicle through the shift transmission housing, the power selection casing, and the universal shaft.

An oil pan is provided for pump lubrication and intercepting oil thrown out by the pump.

An exterior chamber is installed on the pump and oil pan in connection with winter heating of the oil by exhaust gases directed from a gas-selection chamber.

The A.N.B. cesspool evacuator was designed by the Planning and Design Office of the K. D. Pamfilov Academy of Municipal Affairs and is mass-produced at the Gorky Mechanical Plant of the Ministry of Municipal Affairs of the Russian Soviet Federated Socialist Republic.

This model was first produced in 1956.

Technical and Functional Characteristics

Volume of Tank, in Cubic Meters	2.2
Highest Vacuum Created in Tank, in %	
Motor Only Operating	50
Pump Only Operating	Up to 75
Both Motor and Pump Operating	Up to 85
Maximum Pressure Created in Tank, in Atmospheres	2.0
Maximum Depth of Wastes (Below Ground Level,) in Meters	4
Fuel Consumption, in Liters per 100 Kilometers	26.5
Tank Filling Time, in Minutes	2.5 - 4
Tank Emptying Time, in Minutes	4
Production per 8-Hour Shift with Wastes Transported to Waste Discharge Station (Length of Haul 4 - 5 Kilometers), in Cubic Meters	16

Overall Dimensions, in Millimeters	
Length (With Intake Hose)................................	6,700
Width...	2,185
Height..	2,400
Weight of Vehicle (Not Loaded), in Kilograms,................	3,335
Portion of Weight of Vehicle Made Up by Evacuating Equipment, in Kilograms....................................	1.035

Legend - Fig. 3-8

1. Vacuum Pump;
2. Suction Hose;
3. Oil Line;
4. Tank;
5. Oil Pan;
6. Safety Valve;
7. Intermediate Tank;
8. Washwater Tank;
9. Gas-Selection Chamber;
10. Exhaust Muffler;
11. Exhaust Manifold from the Motor;
12. Return Valve;
13. Fourway Valve;
14. Threeway Valve.

The diagram in the lower left-hand corner indicates the positions of the fourway and threeway valves during various operations, namely;

Extreme Left - Filling Utilizing Both Pump and Motor;

Centre Left - Emptying Utilizing Pump;

Central Right - Filling Utilizing Motor;

Extreme Right - Emptying Utilizing Motor.

GARBAGE VANS (FIG. 3-9 TO 3-15 INCLUSIVE)

A garbage van is designed:

(1) to mechanically load garbage from household garbage cans into its enclosed box;

(2) to transport garbage in the latter box; and

(3) to mechanically unload the garbage at disposal points.

Garbage vans are generally used in conjunction with 100-liter irremovable gargage cans.

A garbage van is operated by three men — a driver and two workmen.

M.S.-4 GARBAGE VAN (FIG. 3-10, 3-11)

The M.S.-4 garbage van is mounted on a G.A.Z.-51 automobile chassis.

Garbage from garbage cans is manually dumped into the receiving section of the all-metal enclosed box from where it is continuously loaded into the box by a scraper conveyor. The scraper conveyor, consisting of a traction chain and scrapers, is placed in the upper part of the box. Garbage from the receiving receptacle is transported by the lower operating arm of the scraper chain and is compressed by the scrapers of the conveyer as filling proceeds.

The conveyor is run by a hydraulic drive consisting of two cylinders, a distributor and a reversing switch.

The enclosed box is hinge-connected to the undercarriage; during the unloading operation the box is raised to an inclined position by means of a one-cylinder, two-way, hydraulic hoist with a manual mechanism.

The rear door is suspended from the enclosed box by hinges; when this door is opened (by two hydraulic cylinders) the garbage falls out by gravity. The rear door is locked in its travelling position by a special

catch, thus making the lower part of the enclosed box airtight; the special catch is automatically opened by the hydraulic cylinder before the door is raised.

Oil from the tank is supplied by a gear pump through the gear switch and along the supply lines to the hydraulic hoists of the enclosed box and the rear door, to the hydraulic drive of the conveyor, and to the rear door catch cylinder.

A special distributor coupled to the drive wheels of the conveyor automatically distributes oil to the cylinder of the hydraulic drive of the conveyor.

The gear pump is driven by the motor of the vehicle through the shift transmission housing, the power casing and the universal shaft.

The gear switch control lever and the pump switch are located in the driver's cab, and the reversing switch control handle (which changes the direction of motion of the conveyor chain) is situated to the right of the garbage receptacle.

The M.S.-4 garbage van was designed by the Design Office of the Moscow Board of Public Utilities and is fabricated by the Experimental-Mechanical Plant of this Board and by the Seerdlov Machine Works of the Ministry of Municipal Affairs of the Russian Soviet Federated Socialist Republic.

This model was first produced in 1954.

Technical and Functional Characteristics

Effective Capacity of Enclosed Box, in Cubic Meters	4
Garbage Loading Height, in Millimeters	1,000
Maximum Hoisting Angle of Enclosed Box, in Degrees	50
Maximum Fuel Consumption When Filling and Emptying Enclosed Box, in Liters	4
Scraper Chain Velocity (With 800 R.P.M. Motor) in Meters Per Minute	12
Overall Dimensions, in Millimters	
Length	6,200
Width	2,300
Height	2,400
Vehicle Weight, in Kilograms	
Not Loaded	3,910
Loaded	6,010

Legend - Fig. 3-11

1. Oil Tank;

2. Reduction Valve;

3. Pipeline;

4. & 5. Gear Switch Plugs;

6. Cylinder of Hydraulic Drive;

7. Drive Shaft;

8. Distributor of Hydraulic Drive;

9. Rear Door Hoist Cylinder;

10. Rear Door Catch Cylinder;

11. Reversing Switch;

12. Cylinder of Hydraulic Hoist of Enclosed Box;

13. & 14. Return Valves;

15 Gear Pump.

O.M.-1 GARBAGE VAN (FIG.3-12, 3-13)

The O.M.-1 Garbage van is mounted on a G.A.Z.-51 automobile chassis.

The contents of garbage cans are manually dumped into a receiving hopper situated at the rear end of the enclosed box; the garbage is pushed from the receiving hopper into the all-welded metal enclosed box by a thrust plate.

The thrust plate, pushed along an inclined rail by two two-way hydraulic cylinders, shifts a portion of the garbage from the receiving hopper into the enclosed box and then automatically returns to its original position. The gradual filling of the enclosed box and the packing of the garbage proceed simultaneously as more garbage is collected.

As garbage is loaded into the enclosed box the plate is moved into an inclined position by a two-way hydraulic cylinder and a lever control mechanism.

The rear door is suspended from the enclosed box by hinges and is opened by two one-way hydraulic cylinders when the van is to be emptied. The rear door is locked in its travelling position by a special catch which is automatically opened before the door is raised.

Oil in the hydraulic cylinder is under pressure created by a gear pump driven by the motor of the vehicle through the shift transmission housing, the power selection casing and the universal shaft.

The levers for the hydraulic cylinder valves and the switch which

control the power selection casing are placed in the driver's cab and the lever for the hydraulic cylinder which controls the thrust plate is placed to the right of the receiving hopper.

The O.M.-1 garbage van was designed by the Planning and Design Office of the K.D. Pamfilov Academy of Municipal Affairs and is mass-produced by the Sverdlov Machine Works Plant of the Ministry of Municipal Affairs of the Russian Soviet Federated Socialist Republic.

This model was first produced in 1956.

Technical and Functional Characteristics

Effective Capacity of Enclosed Box, in Cubic Meters	4
Capacity of Receiving Hopper, in Liters	450
Loading Height, in Millimeters	1,000
Maximum Hoisting Angle of Enclosed Box, in Degrees	50
Duration of Filling Cycle (Movement of Thrust Plate), in Seconds	25
Thrust Plate Travel Distance, in Millimeters	1,150
Overall Dimensions, in Millimeters..	
Length	6,125
Width	2,220
Height	2,300
Weight in Kilograms	
Not Loaded	3,900
Loaded	5,900

Legend - Fig. 3-13

1. Gear Pump;
2. Oil Tank;
3. Reduction Valves;
4. Valve Switch;
5. Thrust Plate Cylinder;
6. Enclosed Box Hoist Cylinder;
7. Rear Door Catch Cylinder;
8. Rear Door Hoist Cylinder;
9. Rear Door Hoist Control Valve;
10. Enclosed Box Hoist Control Valve;

M.B.-30 GARBAGE VAN (FIG. 3-14, 3-15)

The M.B.-30 garbage van is mounted on a Z.I.L.-150 automobile chassis.

Garbage cans are manually set on a dustproof device at the rear end of the cylindrical-shaped enclosed box (barrel). The cans are dumped by means of a mechanical hoist.

A spiral conveyor is fixed to the walls of the enclosed box (barrel); the conveyor is operated by the motor of the vehicle through the shift transmission housing, the power selection casing, the reverse reducer, and twin cylindrical gears. Garbage is carried into the enclosed box (barrel) when the conveyor is rotated in one direction and is carried out of the box (barrel) when the conveyor is rotated in the other direction.

The hydraulic equipment for emptying the garbage cans consists of an oil pump installed on the power selection casing, an oil tank, pipelines, a hydraulic cylinder and a control valve situated at the rear and to the right of the dustproof loading device.

The M.B.-30 garbage van was designed by the Design Office of the Leningrad Municipal Maintenance Board. A certain number of the units are fabricated by the Mechanical Plant of the Leningrad City Cleaning Trust and operated in Leningrad itself.

This model was first produced in 1954.

Technical and Functional Characteristics

Effective Capacity of Enclosed Box (Barrel), in Cubic Meters	4.5
Loading Height, in Millimeters	200
Garbage Van Unloading Time, in Minutes	5
Overall Dimensions, in Millimeters	
Length	7,400
Width	2,350
Height	2,600
Weight in Kilograms	
Loaded	9,950
Not Loaded	5,550

Legend - Fig. 3-15

1. Motor;
2. Clutch;
3. Shift Transmission Housing;
4. Reverse Reducer;
5. Cylinder Drive Wheel;
6. Roller Bearing;
7. Screw Conveyor Cylinder;
8. Universal Shaft;
9. Power Selection Casing;

A. Gear Drive Loading Position;

B. Gear Drive Unloading Position.

CONTAINER TRANSPORTERS (FIG. 3-16 TO 3-24 INCLUSIVE)

Container transporters are used for removing garbage from households at which containers (removable garbage cans with a large capacity) have replaced irremovable garbage cans.

The container method of garbage removal is used for large dwellings. Its advantages include the elimination of garbage transloading, a sharp reduction in the number of garbage receptacles used, and an improvement in the sanitory condition of the containers due to centralized washing after emptying (as compared to garbage cans).

A container transporter is operated by two men - a driver and an operator.

K.M.-1 CONTAINER TRANSPORTER (FIG. 3-17, 3-18, 3-19)

A frame with two hinged platforms, seating three containers, is mounted on a G.A.Z.-51 automobile chassis.

The container has the form of a truncated pyramid and consists of a thin-walled receptacle and a cover. The cover contains two hatches through which garbage is thrown.

The unit is equipped with a light crane for loading full containers and unloading empty containers.

The crane is powered by the motor of the vehicle through the shift transmission housing, the power selection casing, the universal shaft, the reverse gearing, the distritutor reducer and the worm reducers of the winch, the swivel and the crane boom.

A one-roller, two-drum crane winch is placed immediately behind the cab. The crane and loading drums of the winch rotate freely on the shaft and are provided with shoe brakes. The drums and the mechanisms on the crane boom swivel are engaged by means of a catch clutch.

Overall Dimension, in Millimeters	
Length	5,800
Width	2,530
Height (With Vertical Crane Column Lowered)	2,700
Weight, in Kilograms	
Loaded	5,900
Not Loaded	4,000

Legend - Fig. 3-18

1. Power Selection Casing;
2. Universal Shaft;
3. Reverse Gearing;
4. Swivel Mechanism;
5. Reducer;
6. Winch;
7. Brake.

M.K.M.-4 CONTAINER TRANSPORTER (FIG. 3-20, 3-21)

This unit has a frame with two unloading platforms to which three cylindrical-shaped containers are fastened.

The full containers are loaded and the empty containers unloaded by two rear hoisting arms which are hinge-connected to the main frame. The two hoisting arms are rotated by two hydraulic cylinders.

A roller conveyer is situated at the ends of the hoisting arms which are curved in conformance with the container diameter. The roller conveyer places the containers in such a way that each container is in its own specified position on the slideway of the unloading platforms after the completing of the loading operation.

The containers are fixed to the platform by a special catch and steel

cable with a screw tightening device.

When unloading the containers, the left and right unloading platforms are rotated around horizontal axes, each by two hydraulic cylinders. The containers are thus tilted and the garbage falls out by gravity.

A gear pump which forces fluid under pressure into the cylinders is mounted on the power selection casing.

The controls for the hoisting and unloading frames consist of hydraulic control cocks located in the driver's cabin.

The M.K.M.-4 container transporter was designed by the Leningrad Scientific Research Institute of the K.D. Pamfilov Academy of Municipal Affairs and is fabricated by the Mechanical Plant of the Leningrad City Cleaning Trust.

The model was first produced in 1954.

Technical and Functional Characteristics

Number of Containers Placed on Vehicle	6
Container Capacity, in Cubic Meters	0.5
Container Angle of Rotation During Emptying, in Degrees	65 - 70
Overall Dimensions, in Millimeters	
Length	5,600
Width	2,150
Height	2,315
Weight of Loaded Vehicle, in Kilograms	4,740

V.M. MOLOTOV WORKS CONTAINER TRANSPORTER (FIG. 3-22, 3-23, 3-24)

This unit is mounted on a G.A.Z.-51 automobile chassis.

Six containers are set on a standard, wooden truck rack.

The container has the form of a truncated pyramid; it is filled through a top opening and emptied through a bottom opening.

A rotating bearing connection for a vertical column is installed on the main vehicle frame member behind the rear cross member; a hydraulic cylinder is set in the hollow section of the column connection. The cylinder rod is hinge-connected to a monorail; a manually-operated carriage with a container grappling device runs along the monorail on rollers.

The rotating bearing connection is mounted on antifriction bearings which permit the column to be easily swung into a lowered position by hand.

When loading a container, the monorail is lowered by means of the hydraulic cylinder and is then manually swung into a position such that the grappling device can be placed in the container eye; the monorail is then raised to a horizontal position and the container which has been lifted with the monorail is manually pushed along it to the point on the rack at which it is to be set; the monorail is then lowered a second time and the container is set on the rack platform.

The procedure in unloading a container involves a reverse sequence of operations.

The hydraulic hoist of the Z.I.L.-585 dump truck is used as the hydraulic cylinder which operates the monorail.

This unit is built by the V. M. Molotov Plant. The plant has fabricated some of these units for servicing residential areas.

The model was first produced in 1955.

Technical and Functional Characteristics

Number of Containers Placed on Vehicle..................	6
Container Capacity, in Cubic Meters.....................	0.6
Overall Dimensions, in Millimeters...	
Length..	6,910
Width...	2,200
Height..	2,575
Weight of Loaded Vehicle, in Kilograms..................	5,150
Weight of Equipment (Not Including Containers), in Kilograms.......................................	550

Legend - Fig. 3-23

1. Oil Pump;
2. Control Cock;
3. Pipeline;
4. Monorail;
5. Grappling Device;
6. Container;
7. Hydraulic Cylinder;
8. Return Valve.

GARBAGE CANS (FIG. 3-25, 3-26)

Portable garbage cans are designed to collect and store garbage in residential areas.

Garbage cans are placed in the residential areas of cities which have a planned and regulated system of garbage collection and removal based upon the irremovable receptacle principle.

Technical and Functional Characteristics

	Garbage Can of the Moscow Board of Public Utilities	Garbage Can of the Leningrad City Cleaning Trust
Capacity, in Liters	100	100
Dimensions, in Millimeters		
Height	890	860
Cover Diameter	440	475
Base Diameter	385	400
Weight (Empty), in Kilograms	20	23.5

The garbage cans are fabricated from galvanized iron from 1 to 1.4 millimeters thick, in the form of a truncated cone. They are provided with tightly-fitting covers and have handles for convenience in carrying and dumping into the garbage van receptacle.

Garbage cans are designed in the Design Offices of the Moscow Board of Public Utilities and the Leningrad City Cleaning Trust.

End of Chapter 3

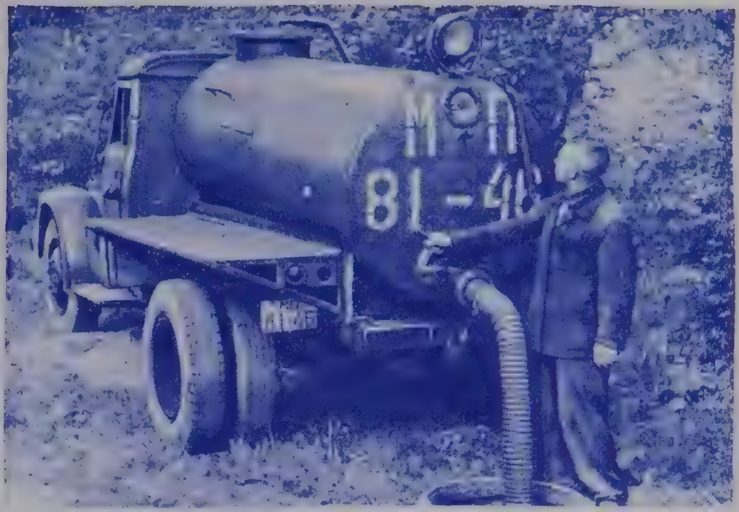


Fig. 3-1. Cesspool Evacuator in Operation

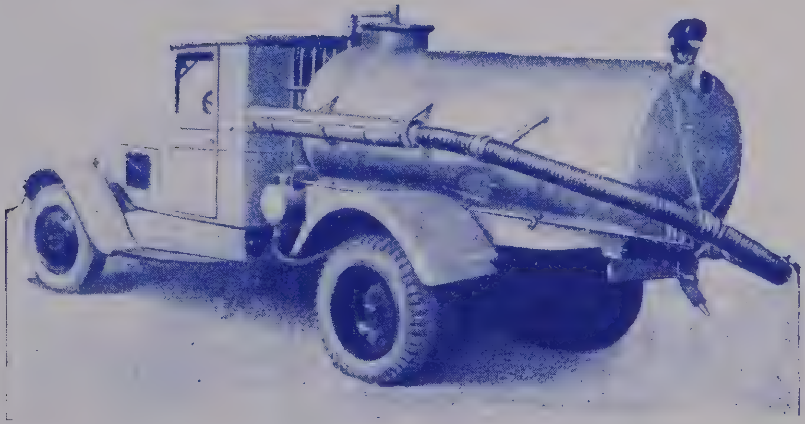


Fig. 3-2. Cesspool Evacuator A.C.M. General View

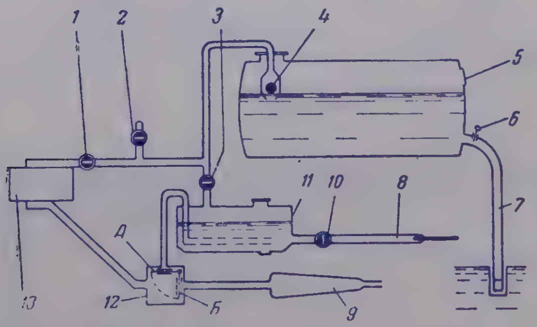


Fig. 3-3. Cesspool Evacuator A.C.M. Pneumatic Diagram

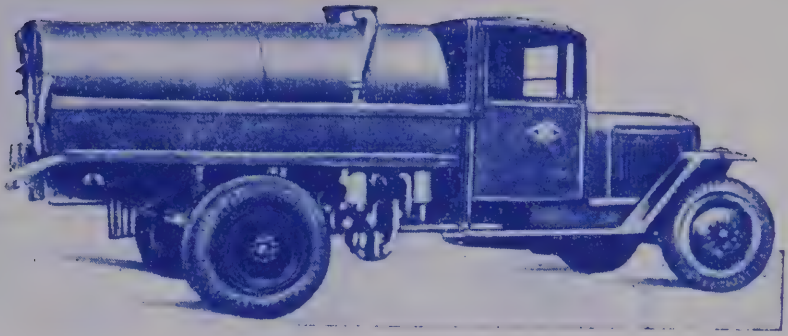


Fig. 3-4. Cesspool Evacuator Ts.N.-15. General View

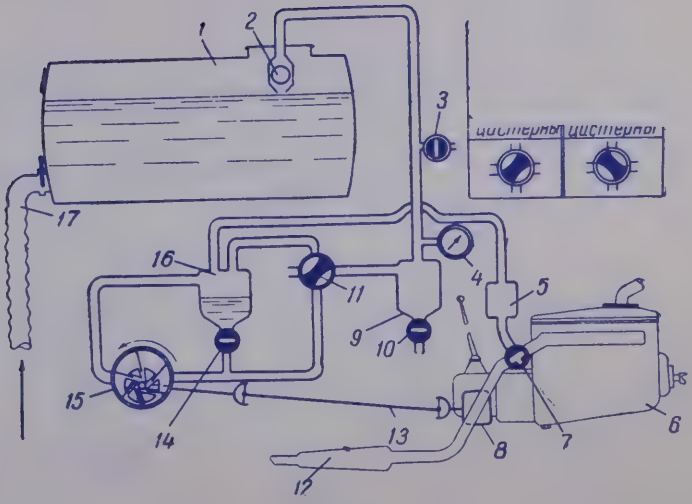


Fig. 3-5. Cesspool Evacuator Ts.N.-15. Penumatic and Kinematic Diagram

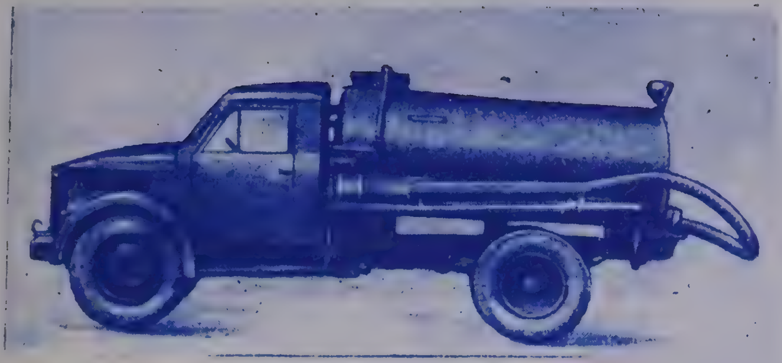


Fig. 3-6. Cesspool Evacuator A.S.M.-2. General View

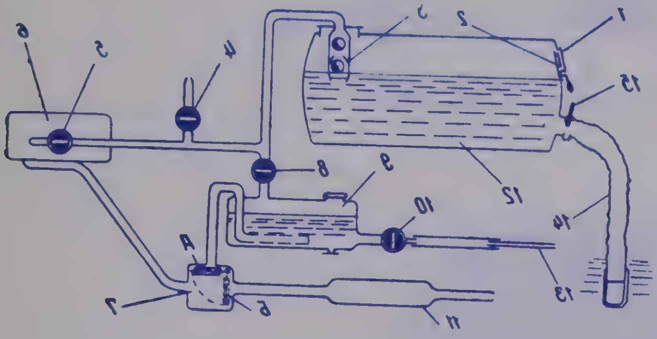


Fig. 3-7. Cesspool Evacuator A.S.M.-2. Pneumatic Diagram

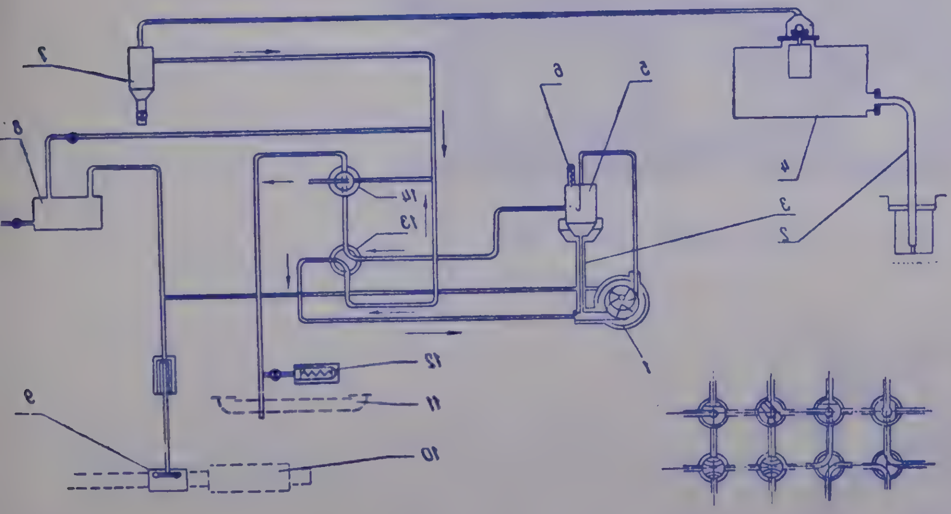


Fig. 3-8. Cesspool Evacuator A.N.B. Pneumatic Diagram

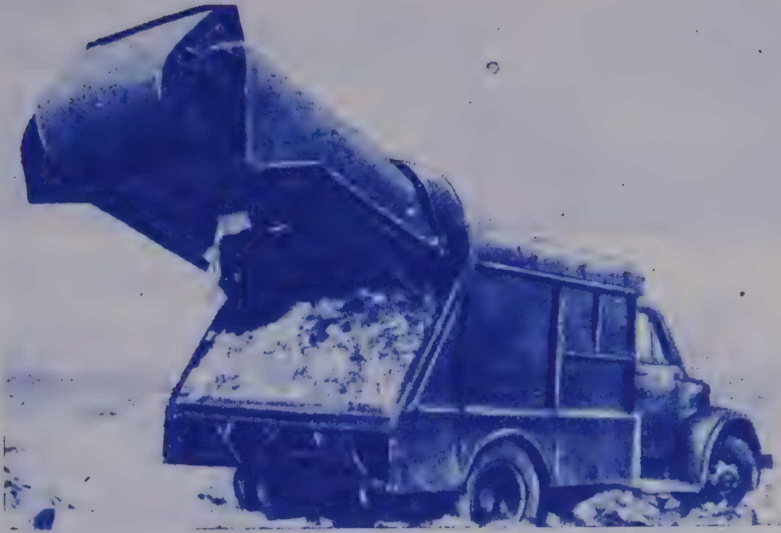


Fig. 3-9. Garbage Van in Operation

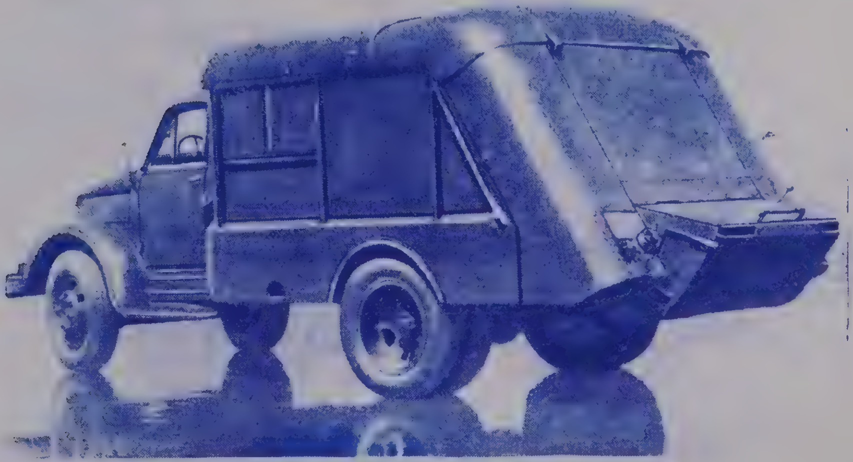


Fig. 3-10. Garbage Van M.C.-4. General View

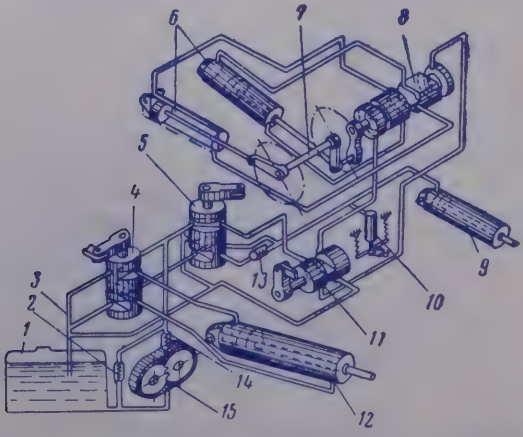


Fig. 3-11. Garbage Van M.C.-4. Hydraulic Diagram

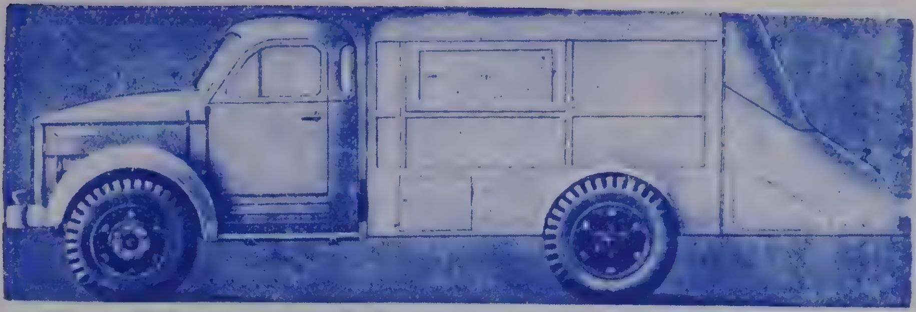


Fig. 3.12. Garbage Van O.M.-1. General View

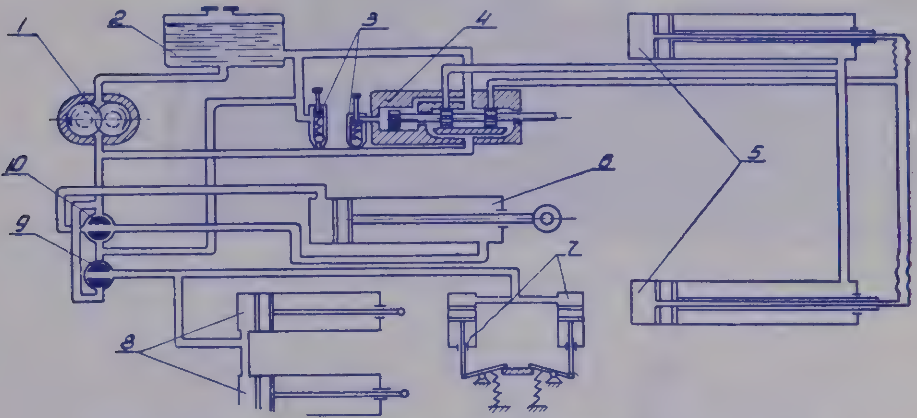


Fig. 3-13. Garbage Van O.M.-1. Hydraulic Diagram

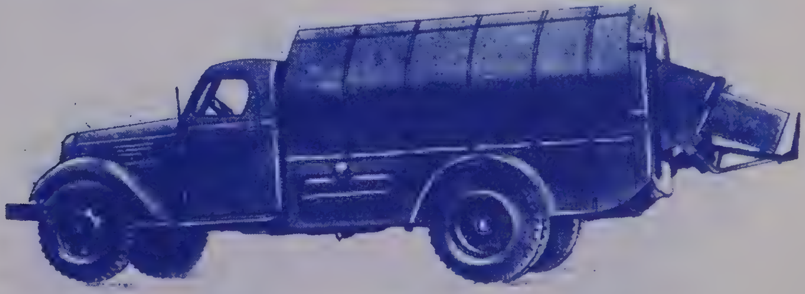


Fig. 3-14. Garbage Van M.B.-30. General View

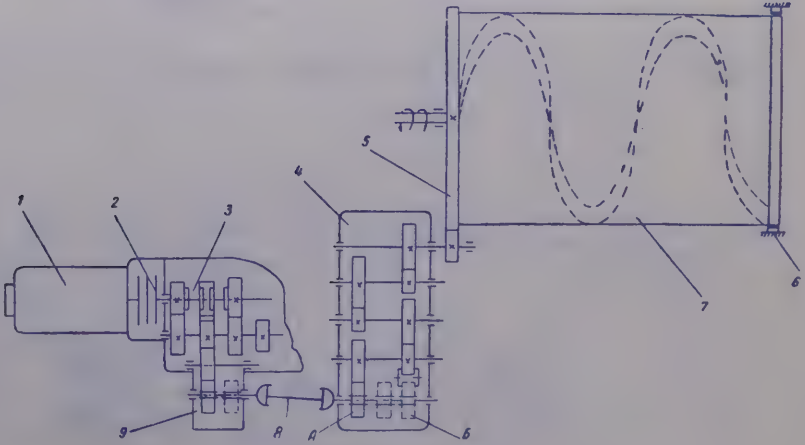


Fig. 3-15. Garbage Van M.B.-30. Kinematic Diagram

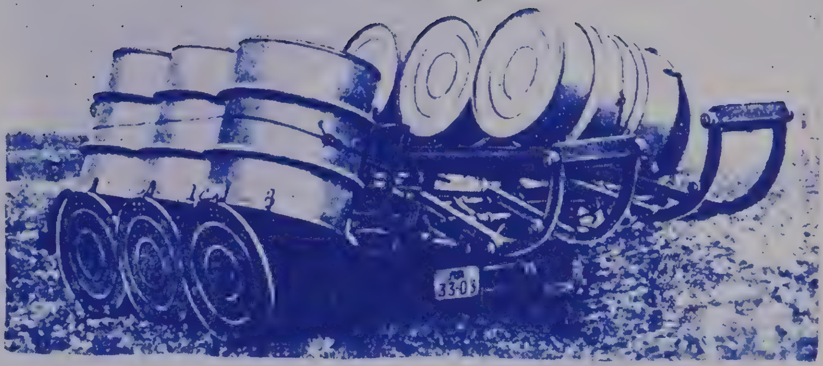


Fig. 3-16. Container Transporter in Operation

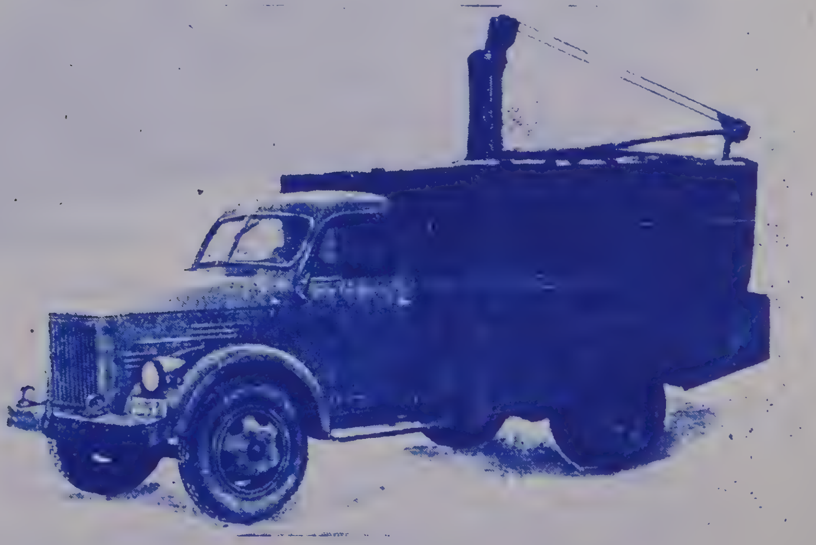


Fig. 3-17. Container Transporter K.M.-1. General View

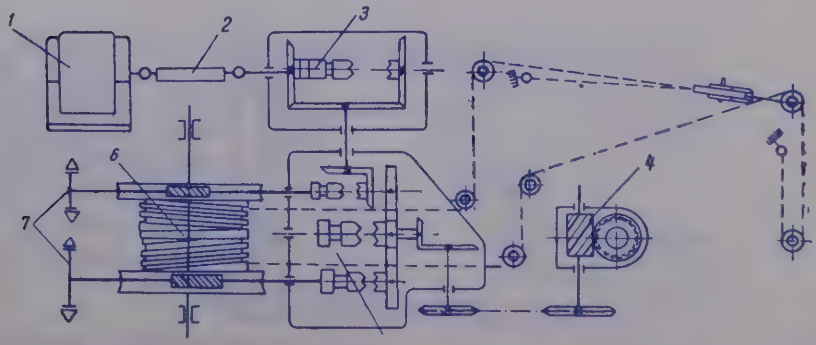


Fig. 3-18. Container Transporter K.M.-1. Kinematic Diagram

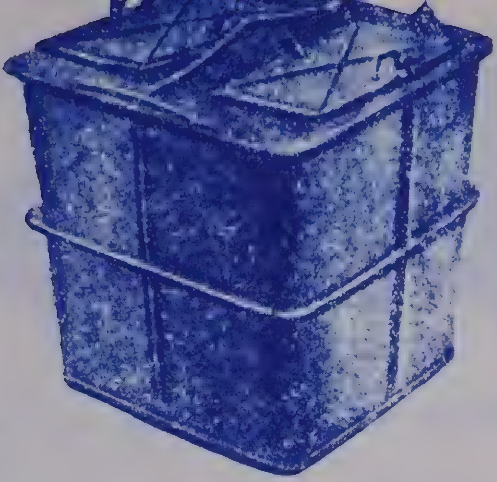


Fig. 3-19. Container Transporter K.M.-1. General View of the Container

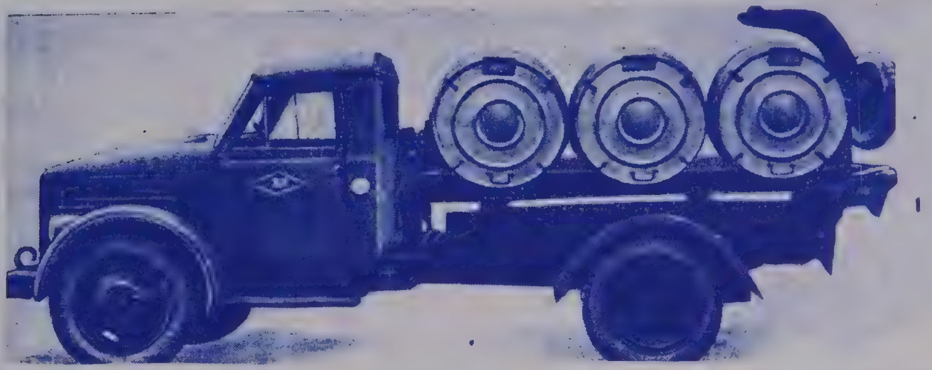


Fig. 3-20. Container Transporter M.K.M.-4. General View

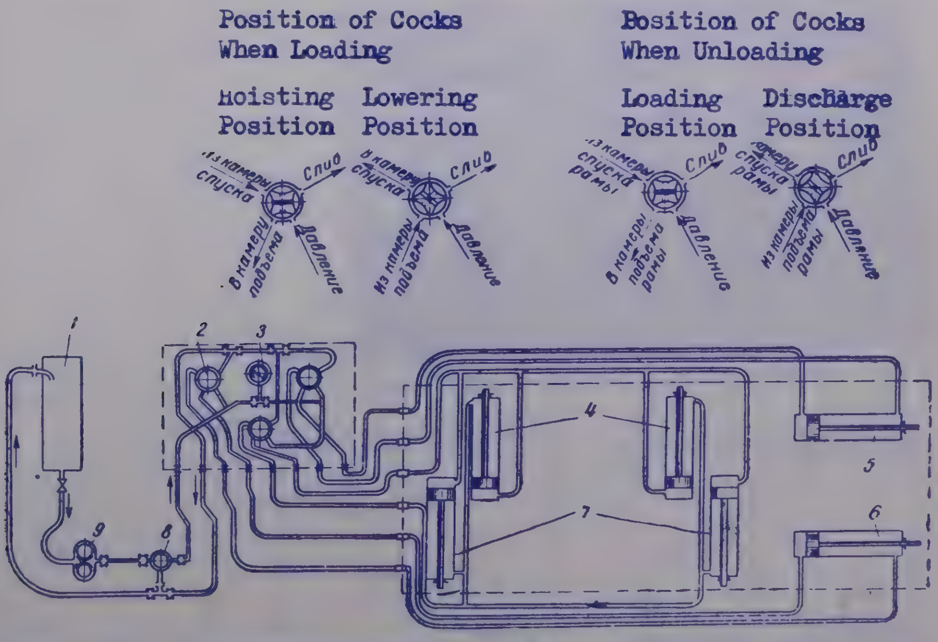


Fig. 3-21. Container Transporter M.K.M.-4. Hydraulic Diagram
Note: uz kamepbI - from chamber (lowering); b kamepy Пodbema - into chamber (hoisting); ДoBЛeHue - pressure; cЛuB - discharge

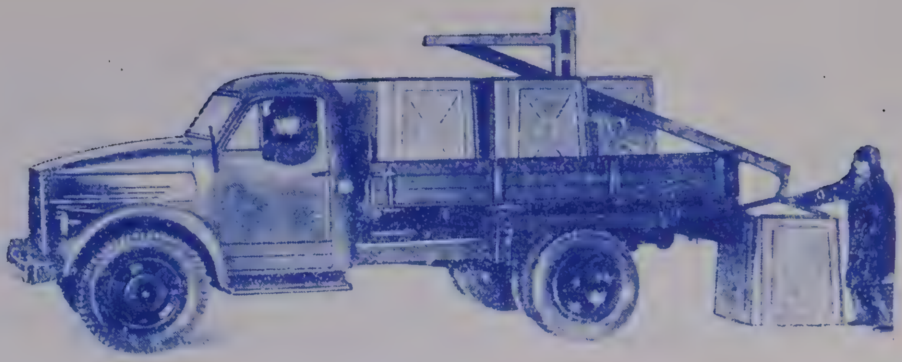


Fig. 3-22. V. M. Molotov Works Container Transporter. General View

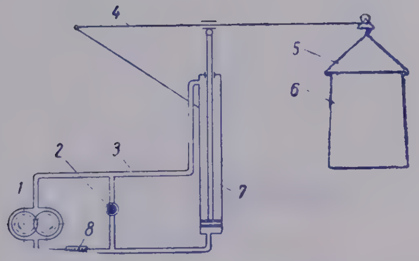


Fig. 3-23. V. M. Molotov Works Container Transporter. Hydraulic Diagram

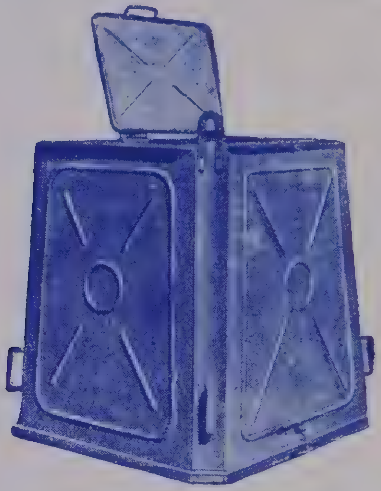


Fig. 3-24. V. M. Molotov Works Container Transporter. General View of the Container

Fig. 3-25. Carrying Garbage Cans

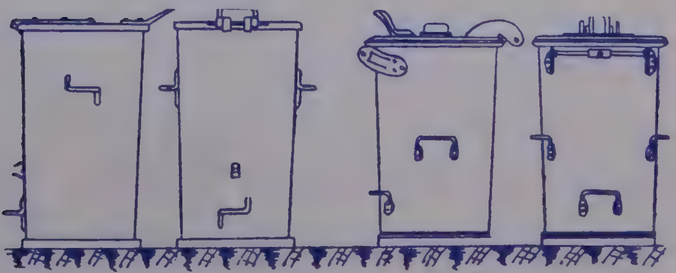


Fig. 3-26. General Views of Moscow-Type (Left) and Leningrad Type (Right) Garbage Cans

4. MECHANISMS

R.K.-2M. UNIVERSAL DISTRIBUTOR HOUSING (FIG. 4-1, 4-2)

A distributor housing directs part of the power of the motors of Z.I.S.-5 and Z.I.L.-150 vehicles through the shift transmission casing to the driving gear of special mechanisms of cleaning equipment mounted on these vehicles.

The mechanism is contained in a cast iron gearbox which is fixed to the right (facing the direction of motion) side of the shift transmission casing by means of pins.

Two grooved shafts with gears, the axis of the intermediate shaft, and two sliding shafts for shifting gears are installed inside the gear box of the distributor housing.

The upper, higher-speed shaft drives a centrifugal water pump (P.M.-6 and P.M.-8 units) and an oil pump; the lower shaft drives two special mechanisms of the cleaning equipment.

The gear box of the distributor housing is covered by a plate which supports the lever for shifting the gears on the upper and lower grooved shafts.

The gear shifting controls are situated in the driver's cab.

When installing the distributor housing, the intermediate gear is connected to the driving gear of the power selection casing drive of the shift transmission.

The distributor housing is lubricated from the transmission housing.

The R.K.-2M. universal transmission housing was designed in the Design Office of the Moscow Board of Public Utilitites and is manufactured by the Experimental-Mechanical Plant of this Board and also by the Plant of the Ministry of Municipal Affairs for the Russian Soviet Federated Socialist Republic.

This model was first produced in 1949.

Technical and Functional Characteristics

Gear Ratio for Z.I.S.-5 Vehicle	
To Upper Shaft	0.88
To Lower Shaft	1.65
Gear Ratio for Z.I.L.-120 Vehicle	
To Upper Shaft	0.704
To Lower Shaft	1.315
Number of Teeth on Gears	
Intermediate Gear	22
Upper Shaft Gear	15
Lower Shaft Gear	28
Overall Dimensions, in Millimeters	
Length	250
Width	240
Height (With Levers)	800
Total Weight, in Kilograms	16

Legend - Fig. 4-2

1. Gear of Main Shaft of Transmission Housing;
2. Gear of Intermediate Shaft of Transmission Housing;
3. Gear of Upper Shaft;
4. Gear of Lower Shaft;
5. Intermediate Gear.

M.Sh.-3 GREASE PUMP (FIG.4-3, 4-4)

This unit is a gear-type pump designed to deliver oil to the cylinders of the hydraulic hoisting mechanisms of cleaning equipment.

The pump is mounted on the front (in the direction of motion) part of a R.K.-2M. universal distributor housing and is run from the upper shaft of the housing which is coupled to the drive shaft of the pump by a grooved connection. Two steel gears and axes are fabricated as a single unit. The axes of the gears are installed on needle bearings situated in the pump covers. The covers of the pump gears are fabricated from an aluminum alloy.

The direction of rotation is indicated on a flanged cover.

Technical and Functional Characteristics

Output (At 2,000 R.P.M. and 80 Kilograms Per Square Centimeter Pressure), in Liters Per Minute	7
Maximum Numbers of Revolutions of Pump in Any One Minute	2,500
Optimum Number of Revolutions Per Minute	2,200
Pump Power Consumption (At 2,200 R.P.M. and 80 Kilograms Per Square Centimeter Pressure), in Horsepower	3.2

Pump Working Fluid:

Type "L" Velosite Lubricating Oil, Transformer Oil, or No. 3 Spindle Oil

Overall Dimensions, in Millimeters

Length	150
Width	100
Height	120

Legend - Fig. 4-4

1. & 4. Covers;
2. High Pressure Housing;
3. Silencing Blank Flange;
5. Slotted Shaft;
6. Control Aperture;
7. Low Pressure Housing;
8. Gear.

P.N.-1000 WATER PUMP (FIG. 4-5, 4-6)

This single-stage, centrifugal pump is installed on P.M.-6 and P.M.-8 sprinkling-washing vehicles and is run from the shift transmission housing of the vehicle through the distributor housing and the universal shaft.

The pump is composed of three principal parts:

1. A reducer;
2. An intermediate housing;
3. An impeller.

These parts are rigidly connected by pins through a gasket.

Two cylindrical gears which serve to increase the number of working revolutions of the impeller are installed on the shafts in the reducer housing; the impeller itself is fixed to one of the shafts by means of a small cog wheel.

The casing in which the impeller is situated contains inlet and outlet apertures.

The P.N.-1000 pump is fabricated by the Municipal Plant of the Ministry of Municipal Affairs of the Russian Soviet Federated Socialist Republic.

Technical and Functional Characteristics

Pump Output, in Liters Per minute	950 - 1,000
Discharge Water Pressure (At from 3,000 to 3,500 Revolutions Per Minute), in Kilograms Per Square Centimeter	6 - 8
Nominal Number of Revolutions of Impeller Per Minute	from 3,000 to 3,500
Reducer Gear Ratio	0.47

Principal Dimensions, in Millimeters

Length	355
Width	375
Height	440
Weight of Pump, in Kilograms	35

Legend - Fig. 4-6

1. Tube of Ejecting Device;
2. Hydraulic Lubrication Packing;
3. Impeller;
4. Drainage Tap;
5. Pump Reducer.

GARBAGE GRINDERS (FIG. 4-7, 4-8)

A garbage grinder is designed to grind solid wastes which are then discharged into a sewage collection system.

Wastes retained on the screens of waste discharge stations are also ground in a garbage grinder and again released into the sewage collection system.

A garbage grinder consists of the following principal parts: a frame, a leading chute, a rotor with hammers and cutting combs, screens, a stone trap, and an electric motor.

The cast iron frame is made up of a lower part and an upper part. The upper part is hinge-connected to the lower and can be raised if necessary.

A ring with hammers attached to it is fixed to the rotor shaft which rotates on ball bearings.

Garbage discharged into the leading chute falls into a working chamber and is forced through the cutting combs by the rotor hammers.

Water is supplied to the working chamber by nozzles installed in the upper part of the grinder; the ground particles of garbage are carried out of the working chamber and through screens by this water.

Hard objects (metal objects, stone objects, bones, etc.) are not ground but are deposited in a stone trap from which they are removed periodically.

Three types of garbage grinders are produced:

1. The D.M.-3-A.K.Kh. model for use in residential areas;
2. The D.M.-4-A.K.Kh. model for use in sewage pumping stations;

3. The D.M.-5-A.K.Kh. model for use in waste discharge stations.

Garbage grinders are designed in the Planning and Design Office of the K.D. Pamfilov Academy of Municipal Affairs and fabricated by the Experimental Plant of the Academy of Municipal Affairs.

Technical and Functional Characteristics

	D.M.-3-A.K.Kh.	D.M.-4-A.K.Kh.	D.M.-5-A.K.Kh.
Average Output, in Kilograms per Hour	575	250	500
Mean Particle Size of Ground Garbage, in Millimeters	3	3	3
Dimensions of Loading Aperture, in Millimeters	230 x 290	230 x 290	230 x 290
Number of Hammers	30	45	45
Capacity of Electric Motor, in Kilowatts	7	20	14
Overall Dimensions, in Millimeters			
Length	1,260	1,400	1,400
Width	1,100	1,100	1,100
Height	1,465	1,465	1,465
Weight in Kilograms	670	800	800

Legend - Fig. 4-8

1. Push Rod;
2. Loading Chute;
3. Upper Casing;
4. Flexible Coupling;
5. Hood;
6. Electric Motor;
7. Bed Plate;
8. Lower Casing;
9. Rotor.

S.P.G.-5 AND M.5-A.K.Kh. SNOW MELTERS (FIG. 4-9, 4-10)

Snow melters are designed as part of a snow removal system; they melt the snow and discharge the resulting water into the sewage collection system.

S.P.G.-5 SNOW MELTER (FIG. 4-9)

This unit is gas-burning, dismountable and portable. It is connected to the gas system by a rubber hose.

The snow melter consists of four main parts: an interior gas distribution system with an exhaust pipe in which the gases are burned and the products of combustion are removed; a hand cart with a base (drip pan) on which the gas distribution system is placed; a snow hopper consisting of a wooden box assembled from separate panels; and a system of gas burners.

The gas distribution system is fabricated from boiler plate on a steel angle framework; the system is made up of a series of interconnected conduits in parallel; the cross section of the conduits is roof-shaped and open at the bottom.

The front panel has two openings for installing the burners; the burner jets are set in the lower conduit of the gas distribution system.

Snow, surrounding the gas distribution system conduits on all sides, melts under the influence of the hot flue gases; the resulting water is discharged into the sewage collection system via the manhole at which the snow melter is placed.

Legend - Fig. 4-9

1. End Panel;
2. Drip Pan;
3. Front Panel;

4. Tee;

5. Gas Jet;

6. Cock;

7. Igniter.

Technical and Functional Characteristics of S.P.G.-5 and M.5-A.K.Kh Snow Melters

	S.P.G.-5	M.5-A.K.Kh.
Average Capacity, in Tons of Snow per Hour	1.5	2.2
Gas Consumption, in Cubic Meters per Hour	27	-
Gas Consumption in Cubic Meters per 1,000 Kilograms of Snow	17	-
Coal Consumption, in Kilograms per Hour	-	32
Coal Consumption, in Kilograms of Gas per 1,000 Kilograms of Snow	-	15
Efficiency Coefficient	0.85	0.85
Volume of Combustion Chamber, in Cubic Meters	-	0.18
Blower Electric Motor Capacity, in Kilowatts	-	0.6
Temperature of Discharged Water, in °C	4	2
Overall Dimensions, in Millimeters		
Length	2,200	2,320
Width	1,970	2,000
Height	1,770	1,200
Weight, in Kilograms	300	590

M.5-A.K.Kh. SNOW MELTER (FIG. 4-10)

This unit is portable and utilizes solid fuel. It is provided with runners (which can be replaced by wheels if necessary) for moving the unit from one point to another.

The snow melter consists of a combustion chamber surrounded by a melting tank and a framework; the front panel is rigidly attached to the drip pan and the runners; the end panel and the blowing equipment are rigidly attached to the air ducts.

Flue gases flow through the tank and enter the framework which surrounds the tank on three sides.

Melting of the snow takes place in the water tank and on the framework under which hot gases from the combustion chamber enter.

Legend - Fig. 4-10

1. End Panel;
2. Front Wall;
3. Blower with Electric Motor;
4. Combustion Chamber;
5. Overflow.

The S.P.G.-5 and M.5-A.K.Kh. snow melters are fabricated by the K. D. Pamfilov Academy of Municipal Affairs.

End of Chapter 4

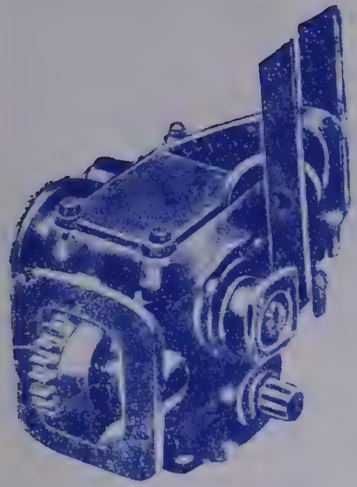


Fig. 4-1. Universal Distributor Housing R. K.-2M. General View

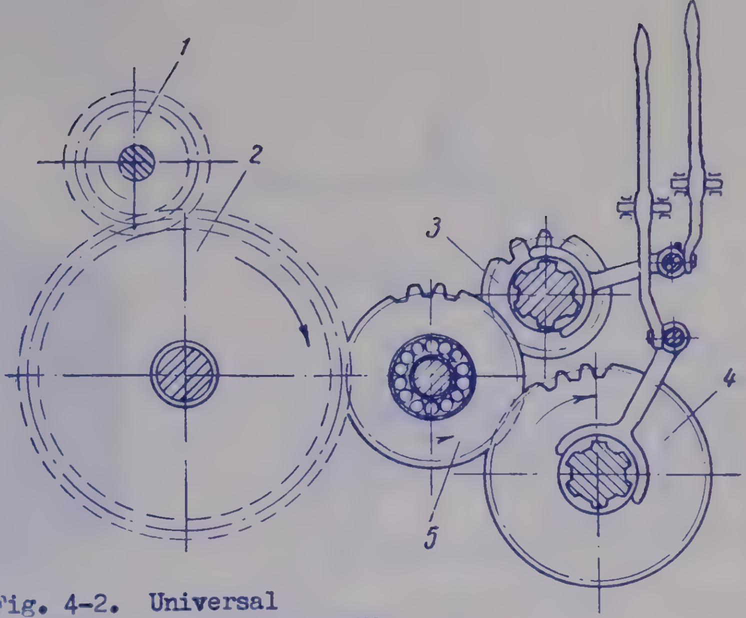


Fig. 4-2. Universal Distributor Housing R.K.-2M. Working Principle Diagram

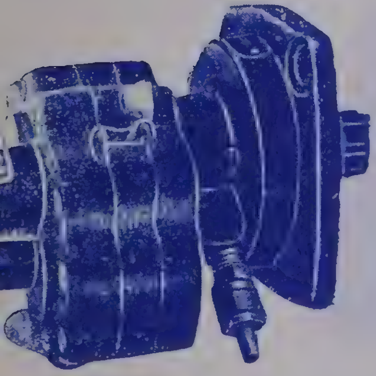


Fig. 4-3. Grease Pump M.Sh.-3. General View

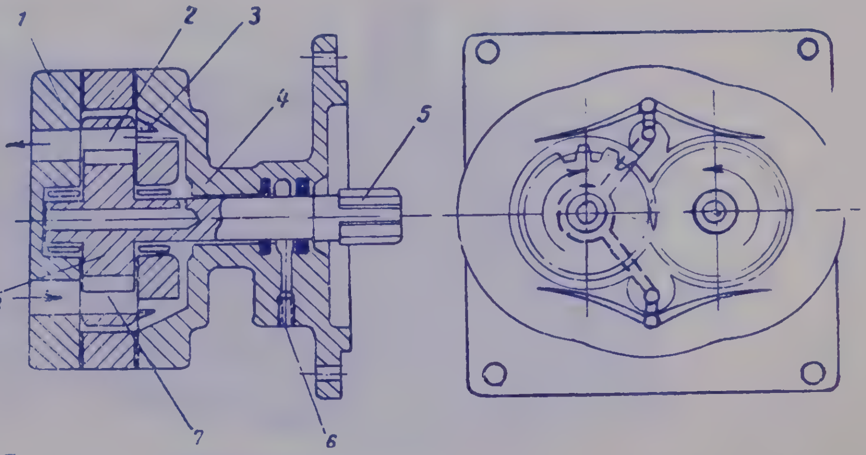


Fig. 4-4. Grease Pump M. Sh.-3. Pump Diagram

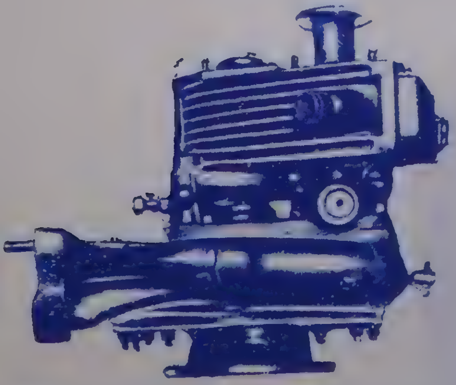


Fig. 4-5. Water Pump P.N.-1000 General View

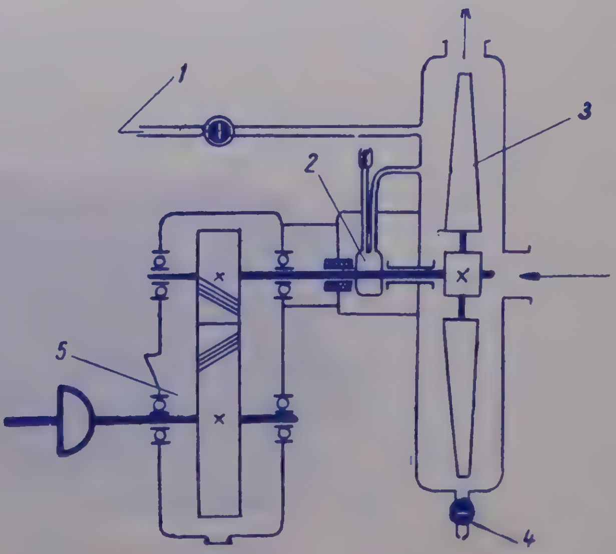


Fig. 4-6. Water Pump P.N.-1000 Working Principle Diagram

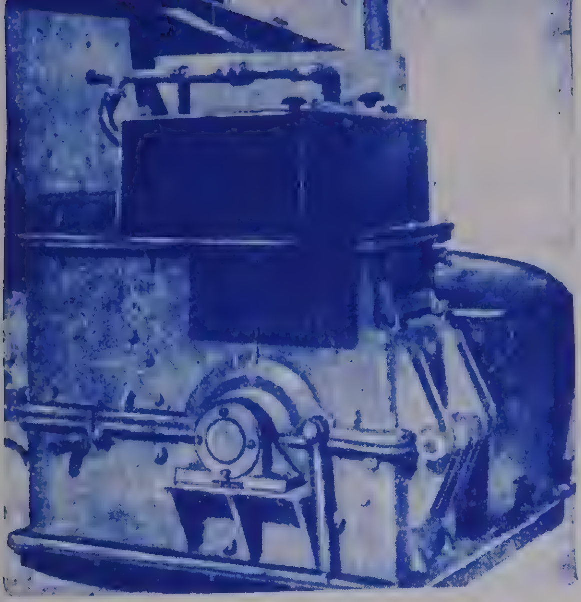


Fig. 4-7. Garbage Grinder. General View

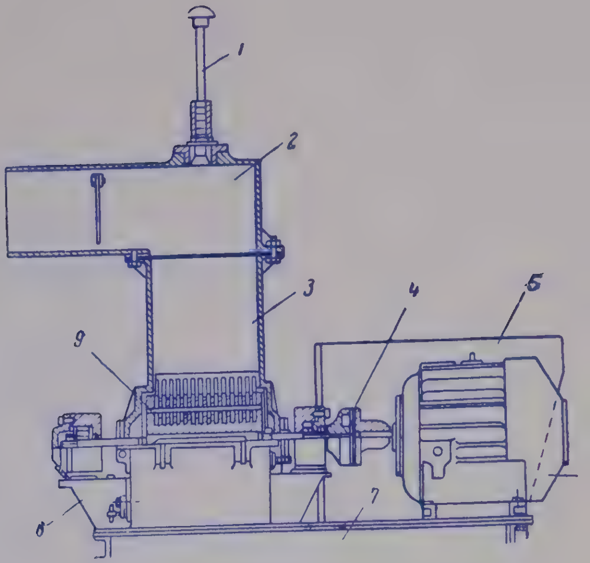


Fig. 4-8. Garbage Grinder. Working Principle Diagram

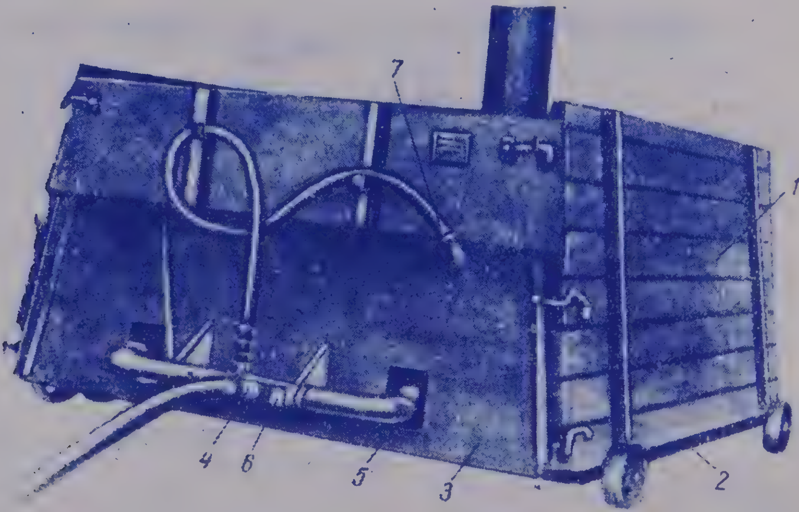


Fig. 4-9. Snow Melter S.P.G.-5. General View

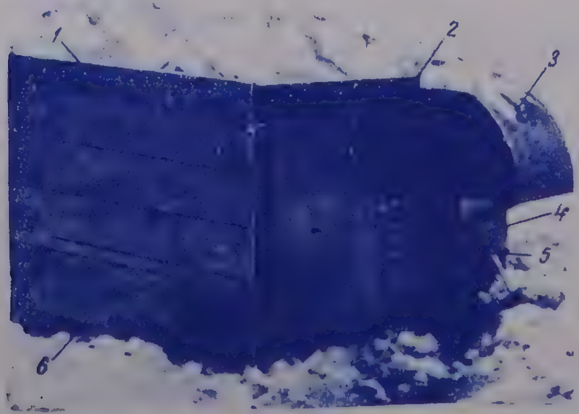


Fig. 4-10. Snow Melter M.5-A.K.Kh. General View

5. INSTALLATIONS

WASTE DISCHARGE STATION (FIG. 5-1, 5-2)

Waste discharge stations are designed to receive wastes from unserviced buildings and to discharge these wastes into a sewage collection system after suitable treatment.

The technical procedure at a waste discharge station involves the following operations:

1. Receiving of wastes from cesspool evacuators in the receiving department;
2. Dilution of wastes by water supplied by pumps which are switched on automatically when the cover of the receiving hatch is raised;
3. Removal of large foreign bodies from diluted wastes with the aid of mechanically-cleaned screens. Type D.M.-5-A.K.Kh. grinders are installed at the screens and grind the waste material retained by the screens; after grinding, the waste material again enters the main flow;
4. Removal of sand from the fluid with the aid of two sand traps functioning alternately. The settled sand is removed from the sand traps manually or by a scraper and chain bucket elevator and loaded into containers;
5. Discharge of the ground and processed wastes into the sewage collection system;
6. Removal of the retained sand from the waste discharge station area. The sand-filled containers are moved to the exit along a monorail telpher and are loaded onto trucks which trans-

port them to the waste disposal point. After being emptied, the containers are soaped on a washbench and stored near the sand trap.

In order to prevent harmful gases from the sewer lines from entering the premises, a hydraulic curtain is provided over the screens. The curtain is automatically engaged when the cover of the receiving hatch is opened.

A one-story waste discharge station building accommodates a discharge channel, a room containing the screen, a room containing the sand traps and washing facilities, and a section for the personnel with a cloak-room, a shower, a ventilation chamber and a drying room.

Trees and shrubbery are planted around the perimeter of the waste discharge station.

WASTE DISCHARGE STATION WITH ONE RECEIVING POINT (FIG. 5-1)

The waste discharge station is provided with a mechanically-operated exhaust ventilation system and is heated by a stove.

A typically-designed waste discharge station with one receiving point is operated by the Leningrad Section of the Giprokommunvodokanal Institute of the Ministry of Municipal Affairs of the Russian Soviet Federated Socialist Republic.

Basic Data

Productivity of Station, in Cubic Meters per Hour....................................	5-10
Maximum Discharge Passing Through Sand Trap, in Liters per Second..	25
Sand Trap Settling Basin, in Liters........................	280

Water Discharge, in Cubic Meters per Second	6.5 - 13
Installed Capacity, in Kilowatt-Hours	
Motors	26.4
Lighting	3.0
Area of Station Lot, in Square Meters	4980
Structural Volume of Station, in Cubic Meters	1050

Legend - Fig. 5-1

1. Manual Winch;
2. Electric Motor for Chain Bucket Elevator;
3. Scraper in Sand Trap;
4. Sorting Table;
5. Screens With Mechanical Rake;
6. Central Discharge Hatch;
7. Supplementary Discharge Hatch;
8. Electric Motor for Screens;
9. Manually-Cleaned Screens;
10. Perforated Tray for Rejected Material;
11. Electric Motor for Grinder;
12. Grinder Hammer;
13. Chain Bucket Elevator for Sand Removal;
14. Gate Valve in Sand Trap;
15. Gate Valve in Trough;
16. Stand for Washing Containers.

WASTE DISCHARGE STATION WITH TWO RECEIVING POINTS (FIG. 5-2)

The station is centrally heated by low-pressure steam.

Steam from the boiler is used for heating, ventilating and warming the receiving hatches, and is supplied to a second type of boiler. Hot water is heated in the latter unit and fed to mixing tanks in the shower cabins.

Pure air in the waste discharge station building is ensured by a mechanically-operated ventilation system with a suction intake and heating of the air supply.

A typically-designed waste discharge station with two receiving points is operated by the Leningrad Section of the Giprokommunvodokanal Institute of the Ministry of Municipal Affairs of the Russian Soviet Federated Socialist Republic.

Basic Data

Productivity of Station, in Cubic Meters per Hour	10 - 20
Maximum Discharge Passing Through Sand Trap, in Liters per Second	50
Sand Trap Settling Basin, in Liters	280
Water Discharge, in Cubic Meters per Second	13 - 26
Installed Capacity, in Kilowatt-Hours	
Motors	29
Lighting	4.2
Area of Station Lot, in Square Meters	6,040
Structural Volume of Station, in Cubic Meters	1,615

Legend - Fig. 5-2

1. Electric Telpher;
2. Chain Bucket Elevator;
3. Grinder with Electric Motor;
4. Rejected Material Container.

BIOTHERMAL CHAMBER FOR GARBAGE TREATMENT (FIG. 5-3, 5-4)

A biothermal chamber is designed to treat garbage by means of the activity of microorganisms for which the garbage is a food habitat. The chamber is equipped with an aeration system and fluid flow conduits which create conditions for the mass propagation of the microorganisms.

The garbage is digested at a high temperature (up to 75°C.); this results in the destruction of pathogenic microorganisms and yields treated compost which is a valuable fertilizer.

Chambers with different capacities (2, 10 and 20 cubic meters) are built; the capacity of the chamber depends on the size of the locality served.

The principal sections of the chamber are the chamber proper, an aeration system, a fluid flow system, facilities for loading and unloading garbage, and working areas around the chamber.

The chamber can be built from quarrystone, brick, wood, sun-dried bricks or other construction materials and waste products.

The time required for the conversion of the garbage to compost is approximately 30 days in the summer and approximately 40 days in the winter.

Biothermal chambers are operated by the Giprokommunvodokanal Institute of the Ministry of Municipal Affairs of the Russian Soviet Federated Socialist Republic.

BESKAMER BIOTHERMAL TREATMENT OF GARBAGE (FIG. 5-5, 5-6).

The beskamer method of garbage treatment possesses a considerable advantage over the chamber method, in spite of a somewhat longer treatment time, because of considerably lower construction and operating costs.

The essential feature of the beskamer method lies in the use of a natural hollow or pit as a garbage fill; an aeration system is provided, guaranteeing the development of an aerobic process in the garbage which results in the decomposition of organic material.

Horizontal conduits are placed on the bottom of the trench and connected to the atmosphere by means of vertical stand pipes. The compost fill is aerated in this manner; the air supply is secured through horizontal drainage system conduits which are left open on both sides.

An intense organic material decomposition process and the generation of marked temperatures (up to 70°C.) ensure the rapid destruction of pathogenic microorganisms.

Beskamer biothermal treatment can be used as the garbage disposal system for any inhabited area.

The beskamer biothermal method was developed as a garbage treatment system by the Rostov Scientific Research Institute of the K. D. Parfilov Academy of Municipal Affairs.

Legend - Fig. 5-5

1. Soil Cover;
2. Temperature Measurement Pipes;

3. Exhaust Riser;
4. Horizontal Conduits;
5. Garbage.

Legend - Fig. 5-6

1. Temperature Measurement Pipes;
2. Soil Cover;
3. Ventilation Conduits;
4. Garbage.

MOBILE PUBLIC LAVORATORIES (FIG. 5-7, 5-8)

Mobile public lavoratories (autotoilets) are designed to serve as public conveniences at places where large numbers of people congregate on a temporary basis (outdoor holiday gatherings, sports matches, demonstrations, etc.).

Autotoilets are designed to function during summer, autumn and spring periods and during isolated days with temperatures below 0° C.

The autotoilet is towed to the point at which it is to be used by a towing vehicle. It is then set on blocks to protect the tires and connected to the sewage collection, water distribution and electricity systems; in the absence of a water distribution system tanks are set on special, dismountable beams.

Sewage is discharged into special storage tanks set on the chassis of the autotoilet. These tanks are connected to the sewage collection system.

The body of the van is erected on a special chassis which is provided with automatic steering and anti-roll brakes on the rear wheels.

Toilets for men and women are in different vans and can be distinguished from each other only by differently planned and arranged sanitary fixtures.

Basic Data

Total Area, in Square Meters	21.8
Interior Volume of Van, in Cubic Meters	42.5

Dimensions of Toilet Compartments, in Millimeters	
Length	1,350
Width	870
Wheelbase, in Millimeters	5,525
Capacity of Water Tank, in Cubic Meters	2,5
Capacity of Sewage Storage Tank, in Cubic Meters	3.5
Dimensions, in Millimeters	
Overall Length	8,320
Overall Width	2,960
Overall Height	3,200
Interior Width	2,700
Interior Height	2,000
Towed Weight, in Kilograms	6,000

The men's lavoratory has three toilet compartments, twelve urinators and two wash basins.

The women's lavoratory has eight toilet compartments and two wash basins.

Both the men's and the women's lavoratories have one maintenance compartment, a sanitary-hygienic cabinet, a folding seat for the service personnel, and a mirror installed near the wash basins.

Autotoilets are designed in the Design Office of the Moscow Board of Public Utilities and built by the Aremkuz Factory in Moscow.

This model was first produced in 1950.

TYPICAL BASES FOR COMMUNITY CLEANING VEHICLES (FIG. 5-9, 5-10, 5-11, 5-12)

Bases are designed for storing, servicing and repairing the special vehicles used for sewage and garbage removal and street cleaning.

The following data give the numbers and types of vehicles stationed at different-sized bases:

	Base for 10 Vehicles	Base for 25 Vehicles	Base for 50 Vehicles
M.C.-4 Garbage Vans on G.A.Z.-51 Automobile Chassis	4	12	26
A.S.M.-2 Cesspool Evacuator on G.A.Z.-51 Automobile Chassis	3	7	14
Sprinkling-Washing Vehicle on Z.I.L.-150 Automobile Chassis	1	3	5
T.-105 Snow Loader on Z.I.L.-150 Automobile Chassis	1	2	3
Sand Disperser with Snow Clearing Equipment on Z.I.L.-150 Automobile Chassis	1	1	2

The technical equipment at the base is such as to permit the execution of all types of repairs on the vehicles, including major repairs. The mechanical equipment is such as to provide for the fabrication and renovation of spare parts of a special nature in numbers not less than 50 percent of the total requirement, and the fabrication of the necessary numbers of spare parts for the repair of the operating parts of the vehicles.

The repair and service stations are equipped with continuous routes, devices for directing the vehicles, hydraulic hoists, and

trolleys for transferring the vehicles from one station to another.

Girders with electric telephers are provided in the repair rooms for moving individual pieces of equipment and assembled units.

The base is also provided with showers, installations for washing, drying and storing work clothes, a chamber for heating cesspool evacuators during the winter, open and covered vehicle washing facilities, and premises for the personnel.

The buildings of the bases are designed as a unified network with the maximum employment of standard prefabricated reinforced concrete elements and details which permit the construction of the base by industrial methods.

TYPICAL BASE FOR 10 COMMUNITY CLEANING VEHICLES (FIG. 5-9)

The construction of a typical base for ten community cleaning vehicles is recommended for communities of local and district importance which possess water distribution, sewage collection and electricity systems.

A typical base for 10 community cleaning vehicles is operated by the Giprokommunstr Institute of the Ministry of Municipal Affairs of the Russian Soviet Federated Socialist Republic.

Basic Characteristics

Area of Lot in Square Meters..............	2,835
Portion of Lot Area Utilized, in Square Meters	740

Structural Volume of Buildings, in Cubic Meters	4,350
Installed Capacity of Trolleys, in Kilowatts	59
Maximum Heat Consumption, in Kilo-Calories per Hour	263.5
Daily Water Consumption, in Cubic Meters	23.5

Legend - Fig. 5-9

1. Garage;
2. Boiler House;
3. Coal Storage Shed;
4. Inflammable Material Storage Warehouse;
5. Fence;
6. Watchman Station;
7. Transformer Substation;.

TYPICAL BASE FOR 25 COMMUNITY CLEANING VEHICLES (FIG. 5-10)

The construction of a typucal base for 25 community cleaning vehicles is recommended for communities of district importance and for large local centres which possess water distribution, sewage collection and electricity systems.

A typical base for 25 community cleaning vehicles is operated by the Giprokommunstr Institute of the Ministry of Municipal Affairs of the Russian Soviet Federated Socialist Republic.

Basic Characteristics

Area of Lot, in Square Meters	7,600
Portion of Lot Area Utilized, in Square Meters	2,415

a. Direct Industrial Purposes	1,870
b. Indirect Industrial Purposes	205
Structural Volume of Buildings, in Cubic Meters	19,300
a. Main Buildings	18,300
b. Auxiliary Buildings	1,000
Installed Capacity of Trolleys, in Kilowatts	215
Maximum Heat Consumption, in Kilo-Calories per hour	736
Daily Water Consumption, in Cubic Meters	54

Legend - Fig. 5-10

1. Coal Storage Shed;
2. Reinforced Concrete Fence;
3. Boiler House;
4. Vehicle Filling Station;
5. Control Point;
6. Garage;
7. Transformer Substation;
8. Stockade for Vehicle Washing.

TYPICAL BASE FOR 50 COMMUNITY CLEANING VEHICLES WITH OPEN PARKING AREA (FIG. 5-11)

The construction of a typical base for 50 community cleaning vehicles is recommended for communities of district and regional importance which possess water distribution, sewage collection and electricity systems.

A typical base for 50 community cleaning vehicles with an open parking area is operated by the Giprokommunstr Institute of the Ministry of Municipal Affairs of the Russian Soviet Federated Socialist Republic.

Basic Characteristics

Area of Lot, in Square Meters	10,450
Portion of Lot Area Utilized, in Square Meters	2,675
a. Direct Industrial Purposes	1,815
b. Indirect Industrial Purposes	275
Structural Volume of Buildings, in Cubic Meters	22,450
a. Main Buildings	21,270
b. Auxiliary Buildings	1,180
Installed Capacity of Trolleys, in Kilowatts	365
Maximum Heat Consumption, in Kilo-Calories per Hour	1,105
Daily Water Consumption, in Cubic Meters	83

Legend - Fig. 5-11

1. Coal Storage Shed;
2. Boiler House;
3. Transformer Substation;
4. Control Point;
5. Vehicle Filling Station;
6. Vehicle Parking Area;
7. Garage;
8. Reinforced Concrete Stockade;
9. Reinforced Concrete Fence.

TYPICAL BASE FOR 50 COMMUNITY CLEANING VEHICLES WITH ENCLOSED PARKING AREA (FIG. 5-12)

The construction of a typical base for 50 community cleaning vehicles is recommended for communities of district and regional importance which possess water distribution, sewage collection and electricity systems.

Fifty percent of the vehicles are placed in indoor premises and the other 50 percent in an open parking area.

A typical base for 50 community cleaning vehicles with enclosed parking is operated by the Giprokommunstr Institute of the Ministry of Municipal Affairs of the Russian Soviet Federated Socialist Republic.

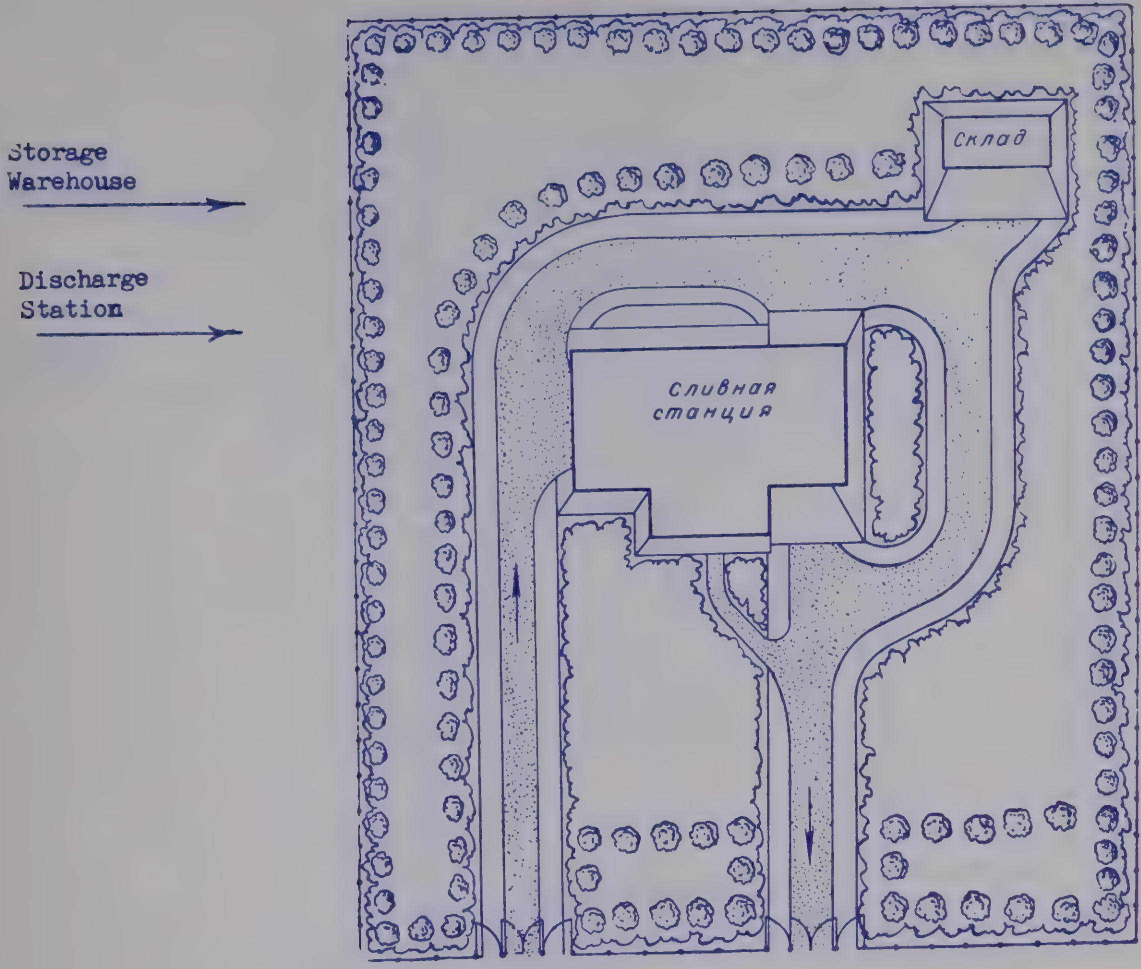
Basic Characteristics

Area of Lot, in Square Meters		14,700
Portion of Lot Area Utilized, in Square Meters		4,075
a. Direct Industrial Purposes	3,310	
b. Indirect Industrial Purposes	185	
Structural Volume of Buildings, in Cubic Meters		32,500
a. Main Buildings	31,320	
b. Auxiliary Buildings	1,180	
Installed Capacity of Trolleys, in Kilowatt		360
Maximum Heat Consumption, in Kilo-Calories per Hour		1,260
Daily Water Consumption, in Cubic Meters		85

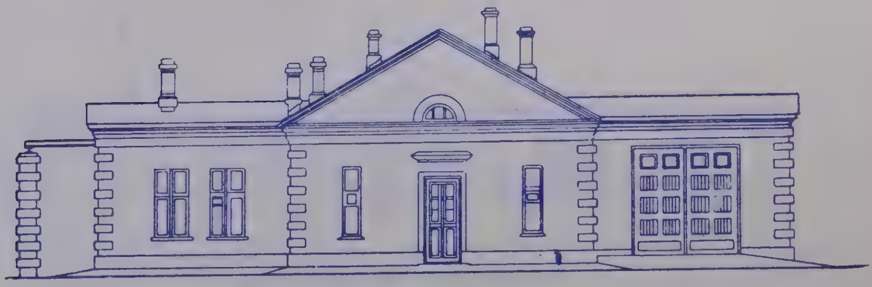
Legend - Fig. 5-12

1. Reinforced Concrete Fence;
2. Coal Storage Warehouse;
3. Boiler House;
4. Control Point;
5. Garage;
6. Transformer Substation;
7. Vehicle Filling Station;
8. Reinforced Concrete Stockade.

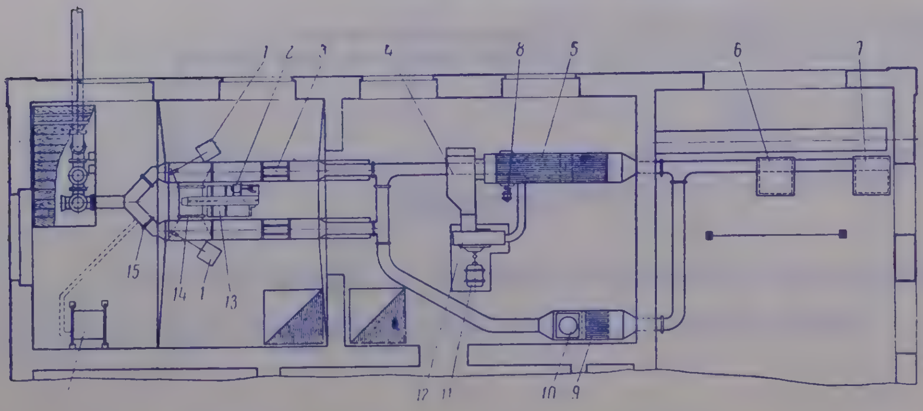
End of Chapter 5



General Plan

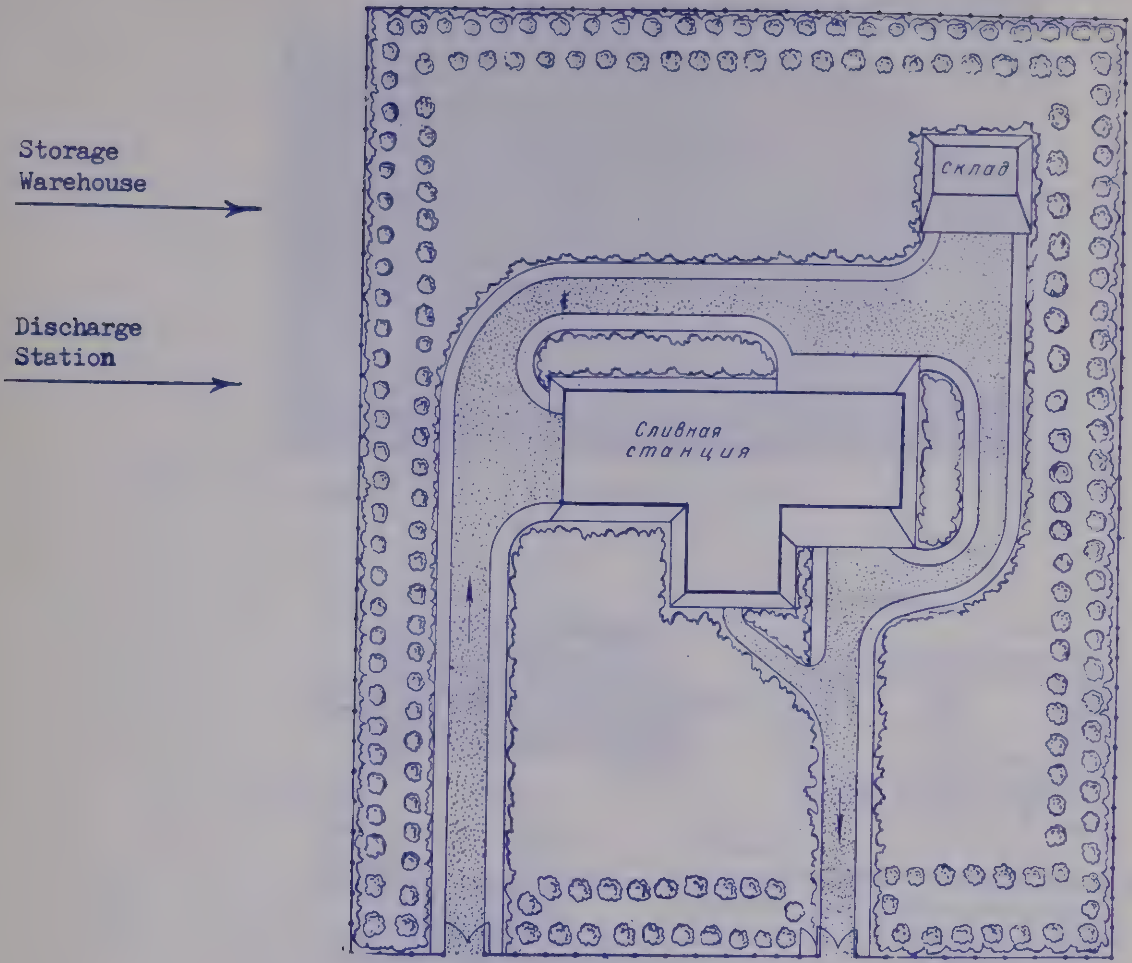


View of the Main Entrance

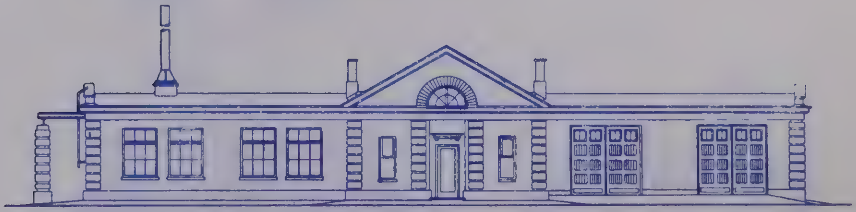


Plan of the Operating Section of the Building

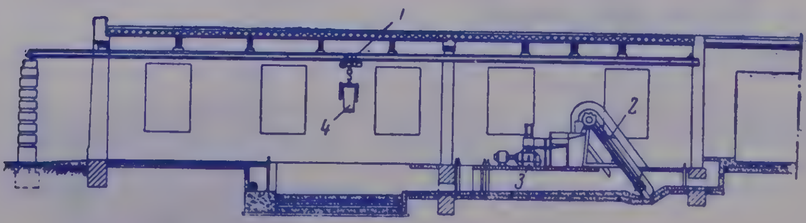
Fig. 5-1. Waste Discharge Station with One Discharge Point



General Plan



View of the Main Entrance



Section Through the Operating Department of the Building

Fig. 5-2. Waste Discharge Station with Two Discharge Points

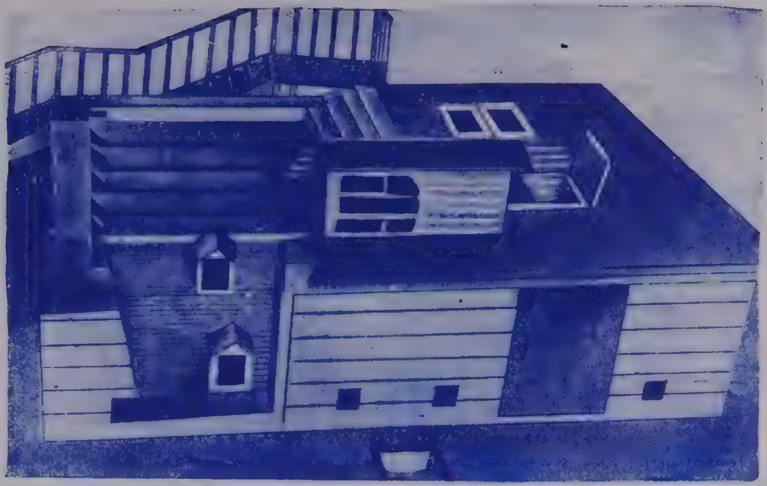


Fig. 5-3. General View of a Biothermal Chamber

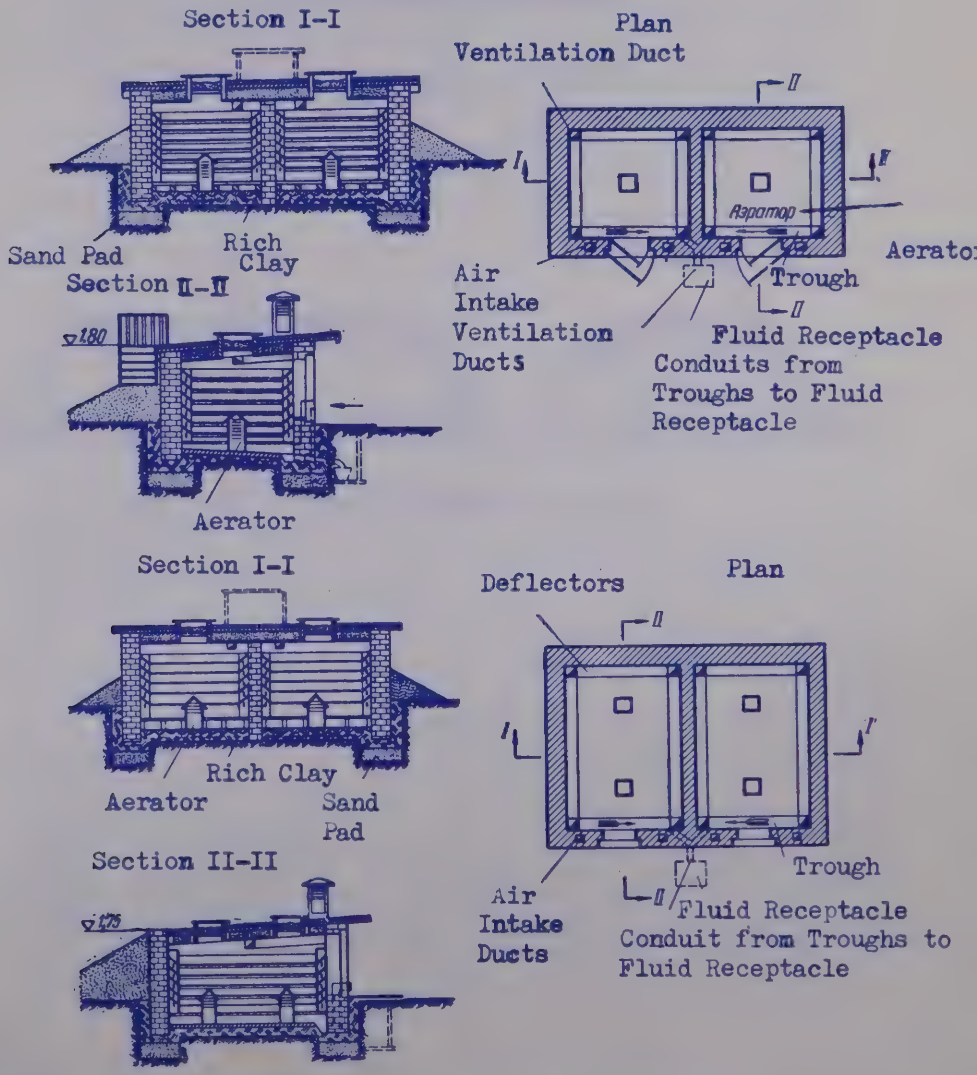


Fig. 5-4. Plan and Section of a Biothermal Chamber

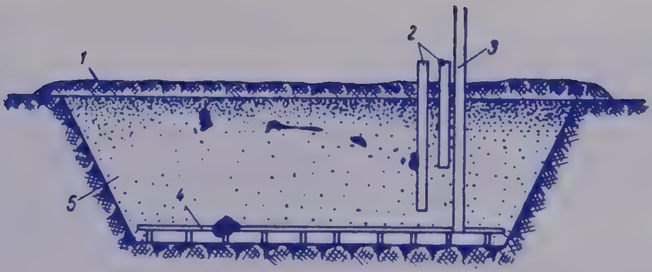


Fig. 5-5. Garbage Treatment in a Pit

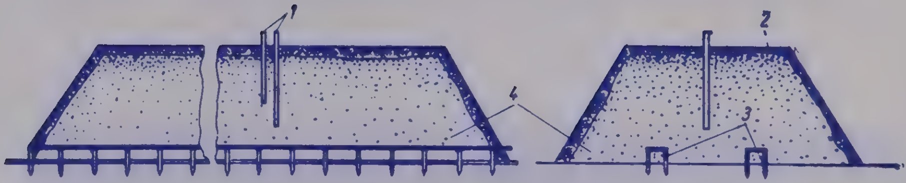


Fig. 5-6. Garbage Treatment in a Fill

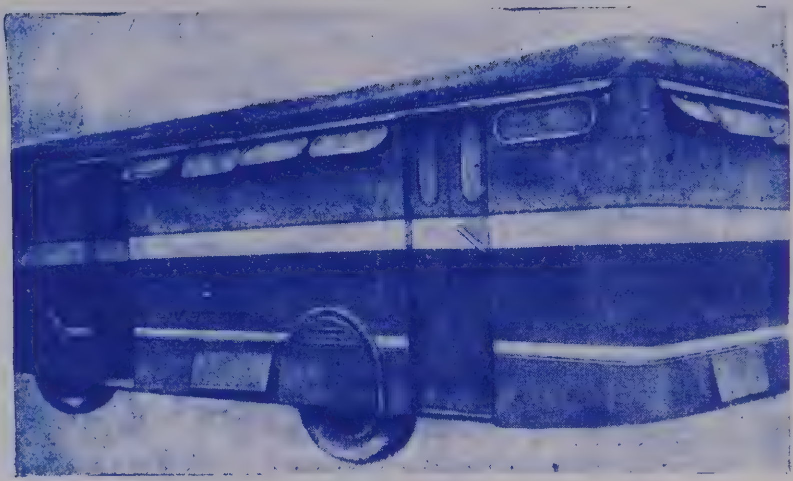


Fig. 5-7. Exterior View of a Mobile Lavoratory (Autotoilet)

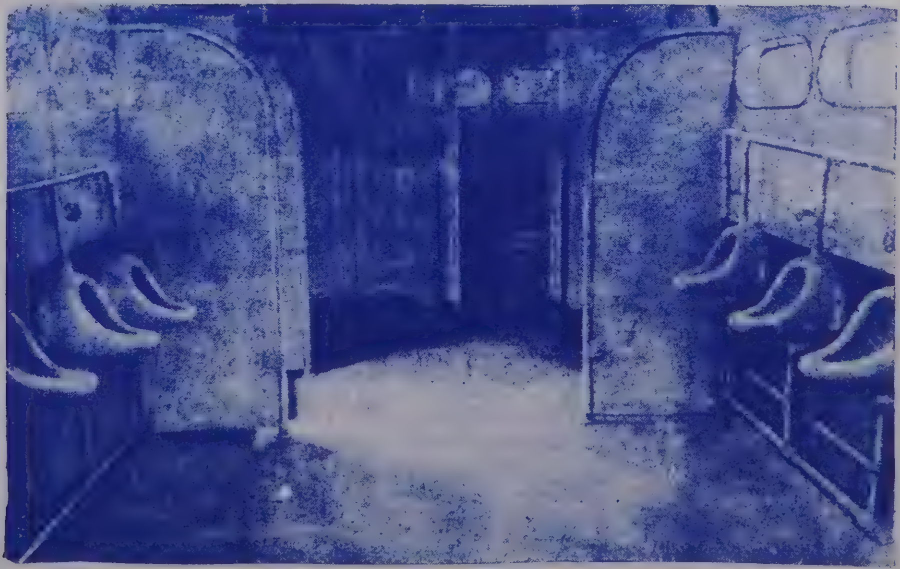
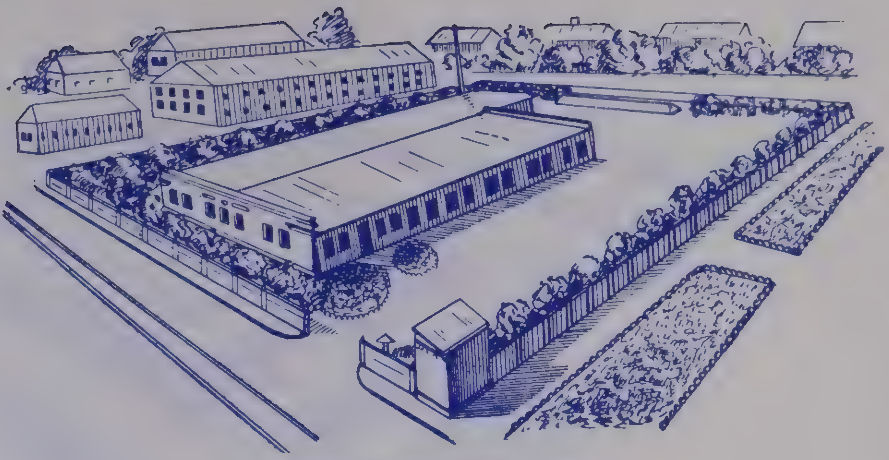
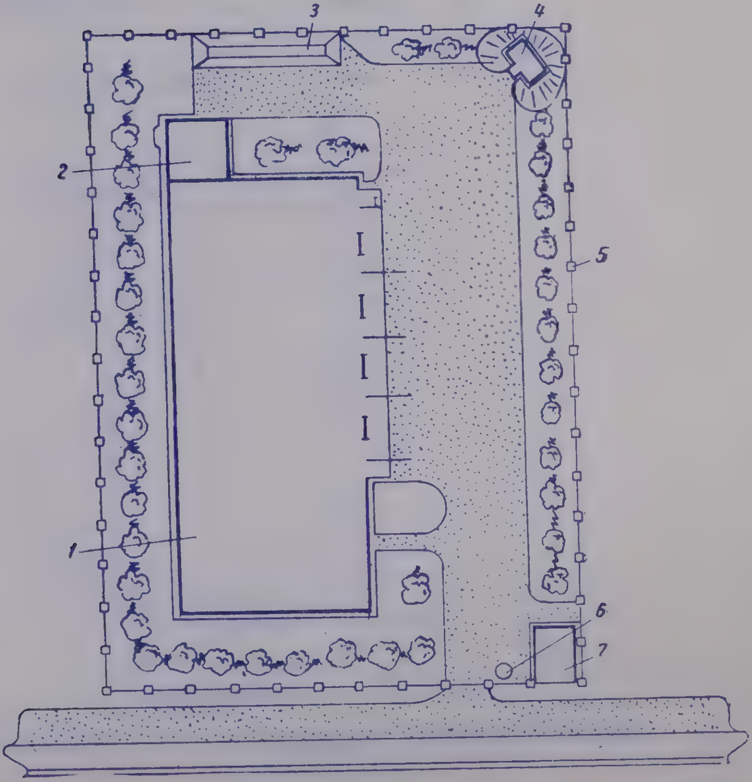


Fig. 5-8. Interior View of a Mobile Lavoratory (Autotoilet)

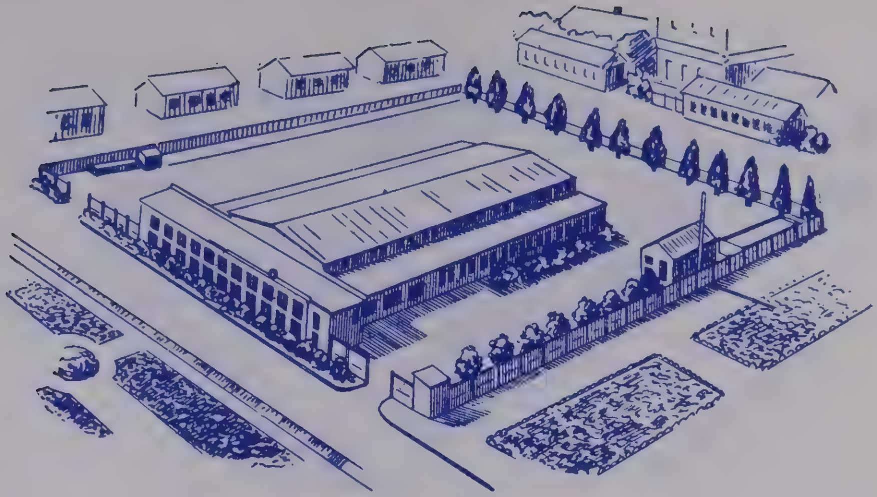


General View of the Base

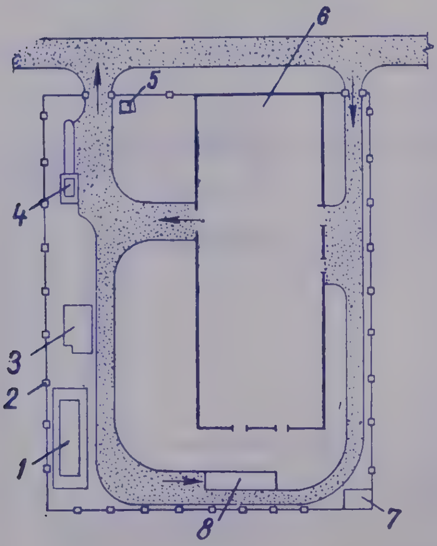


General Plan

Fig. 5-9. Typical Base for 10 Community Cleaning Vehicles

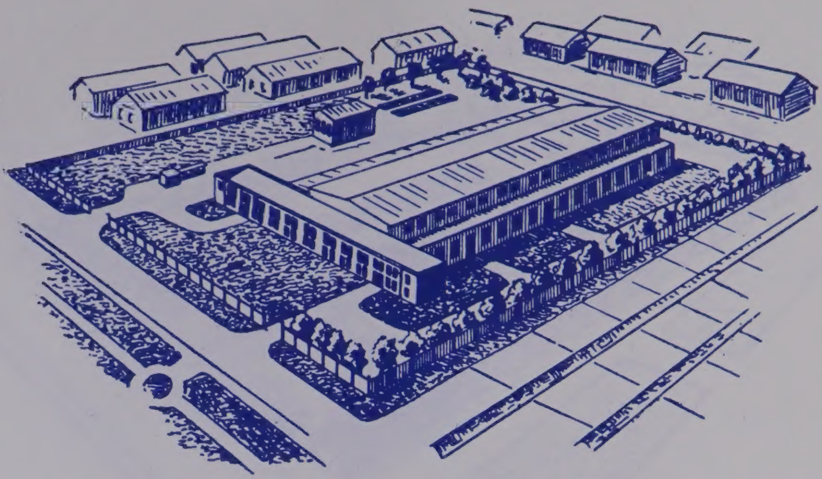


General View of the Base

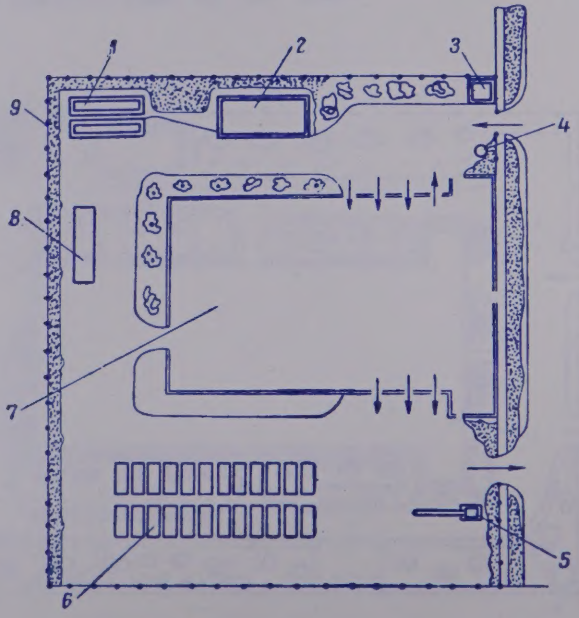


General Plan

Fig. 5-10. Typical Base for 25 Community Cleaning Vehicles



General View of the Base



General Plan

Fig. 5-11. Typical Base for 50 Community Cleaning Vehicles with Open Parking Area

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